



CPP Investments Green Bond Second Opinion

June 22, 2022

Executive Summary

CPP Investments manages the Canada Pension Plan (CPP) on behalf of its over 20 million contributors and beneficiaries. As of 2022, CPP Investments was managing CAD 539 billion in global investments across diverse asset classes. This includes exposure to oil and gas companies and other heavy emitting sector investees, with whom CPP Investments actively engages on transitioning to a low carbon future.

Under its 2022 green bond framework, CPP Investments seeks to finance and refinance wind and solar power and green hydrogen, certified green buildings, zero emissions private and public transportation, and diverse energy efficiency measures. In an update from this issuer's previous frameworks, any direct investment in fossil fuel infrastructure is explicitly excluded, including transportation relying on conventional fuels or fossil-based hydrogen, renewable energy that expands oil and gas capacity, fossil-fuel based power generation, and fossil fuel switching during building heating system retrofits. Additional changes include introducing green hydrogen to the renewable energy category and new performance thresholds for the energy efficiency category.

We rate the framework **CICERO Dark Green** and give it a governance score of **Excellent**. The renewable energy and low carbon/clean transportation categories are shaded Dark Green, energy efficiency is assigned Medium to Dark Green, and green buildings receive Medium Green. CPP Investments has not committed to a specific allocation among project categories. It expects a continued focus on renewable energy, which has accounted for around 80% of investments under previous issuances, leading to the overall Dark Green framework shading. If the ultimate allocation of proceeds is different than expected, the overall framework shading may change as well. With its new commitment to net zero by 2050 across its operations and portfolio, CPP Investments has further strengthened its climate mitigation and risk management strategy while maintaining clear selection and reporting approaches under the framework.

Key Strengths

CPP Investments' integration of climate risks and opportunities across its teams and processes, new climate targets and expanded emissions reporting, growing investee engagement on climate, and additional exclusions and performance criteria for eligible project categories are all strengths. The organization has committed to a net zero by 2050 target covering its emissions across scopes, asset classes, and geographies as well as an interim goal of operational carbon neutrality by 2023. Its reporting now includes its operational as well as

SHADES OF GREEN



°CICERO
Dark Green

GOVERNANCE ASSESSMENT



GREEN BOND PRINCIPLES

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



financed emissions. CPP Investments is increasing its consideration of and active engagement with investees on climate issues through its screening and monitoring processes, disclosure and target-setting expectations, direct dialogues, and proxy voting practices, including escalating engagements by voting against reappointments of risk committee chairs.

In an update from past issuances, CPP Investments' framework incorporates an exclusion for investments in fossil fuel infrastructure, such as hybrid vehicles, renewable energy that supports oil and gas development, power generation based on fossil fuels, and fossil fuel switching for building heating systems. The issuer has also added an energy efficiency performance threshold of a 30% reduction in primary energy demand (PED).

Weaknesses

There are risks that equity investments eligible under the framework may be in companies with exposure to emissions intensive or environmentally harmful activities. CPP Investments' framework allows for equity investments in companies that derive at least 95% of their revenues from activities that align with International Capital Markets Associations (ICMA) Green Bond Principles' (GBP) suggested project categories. While CPP Investments explicitly excludes direct investments in fossil fuels as a use of proceeds, there are risks that the remaining 5% of revenues may be derived from other heavy emitting activities or activities with substantial environmental impacts. We encourage CPP Investments to undertake careful screening and monitoring to manage this risk and develop clearer processes to divest from or transform such activities.

Additionally, even with a policy of active ownership, it can be difficult to track and control the end use of equity investments, creating potential exposure to activities with climate or other environmental impacts. CPP Investments informs us that it assesses these risks each year when assets are re-evaluated for eligibility under the framework as well as on an ongoing basis through active engagement and visibility from what is often majority ownership. We encourage the issuer to continue to strengthen these efforts.

Key Pitfalls

Potential pitfalls include CPP Investments' continued exposure to fossil fuel assets and heavy emitting sectors as well as lock in and rebound risks under the green buildings and energy efficiency project categories.

CPP Investments continues to invest in oil and gas and other heavy emitting sectors in its wider portfolio, creating ongoing exposure to fossil fuels despite its net zero by 2050 target. While the issuer has laid out principles for its active engagement with portfolio companies and expectations around sufficient consideration and disclosure of climate risks by investees, these efforts may not ensure ambitious emissions reductions at the scale and pace required.

A second pitfall is that investments in certain project categories may indirectly support fossil fuels for reasons that may be outside of CPP Investments' direct control. Green buildings that rely on fossil fuel-based heating systems (which should be phased out as soon as possible), for example, will still be eligible for investment, creating potential lock in risks for these assets with long lifespans. While building certification may improve some aspects of climate and environmental performance, it does not necessarily mitigate this risk. The energy efficiency category also allows for investments that may create potential lock in and rebound risks. We encourage CPP Investments to assess lifecycle emissions performance during the selection process to mitigate these concerns.



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1 CPP Investments' environmental management and green bond framework

Company description

CPP Investments, formerly the Canadian Pension Plan Investment Board, is a professional investment management organization that manages the funds of the Canada Pension Plan (CPP). Its purpose is to invest CPP assets on behalf of its over 20 million contributors and beneficiaries in order to maximize returns without undue risk of loss to support financial security in retirement. Under the oversight of an independent Board of Directors, CPP Investments is managed separately from CPP itself and operates at arm's length from national and provincial governments.

At the end of March 2022, CPP Investments managed CAD 539 billion. It has over 2,050 employees across nine offices and has made investments in over 50 countries in asset classes including public equities, private equities, bonds, private debt, real estate, and infrastructure.

CPP Investments has previously released green bond frameworks in 2018 and 2021, with around 80% of proceeds allocated to renewable energy projects and the remainder to green buildings. As of 2022, it has six outstanding green bond issuances totalling over CAD 5.2 billion.

Governance assessment

CPP Investments has developed a strong climate strategy that addresses mitigation as well as risk and resilience at portfolio level. Since its previous green bond issuances, it has set a new net zero by 2050 target for its operations and portfolio, as well as an interim goal of operational carbon neutrality by 2023. Climate change is integrated into its investee selection, monitoring, and engagement processes. CPP Investments undertakes climate scenario analysis to better understand its portfolio's exposure to physical and transition risks and inform its investment decision making. It reports on its emissions across scopes as well as on its climate risks based on the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).

Selection under CPP Investments' framework is undertaken by its Sustainable Investment Committee (SIC), which has members with environmental competence and veto power. Environmental, social, and governance (ESG) factors are considerations in due diligence processes, but climate-related factors such as resilience and lifecycle emissions are not necessarily screened at an asset level. In an update from previous issuances, direct investments in fossil fuel infrastructure are explicitly excluded.

CPP Investments will provide third party-verified, public impact and allocation reporting on an annual basis. While it has not committed to specific metrics, its past reporting covers relevant indicators across all project categories.

The overall assessment of CPP Investments' governance structure and processes gives it a rating of **Excellent**.



Sector risk exposure

Physical climate risks. More frequent and extreme weather events can significantly impact the value of a financial institution's portfolio of investments across diverse sectors and geographies. The harmful effects of more intense storms, flooding, sea level rise, droughts, fires, and heat stress that are expected to increase due to climate change are particularly relevant for a pension fund like CPP Investments operating on long time horizons with a goal of avoiding significant risks that could threaten beneficiaries' secure retirements.

Transition risks. Due to the profound changes needed to limit global warming to well-below 2°C, transition risk affects all sectors. CPP Investments is exposed to transition risks that could threaten the long-term value of its portfolio, such as from policies that increase the cost of carbon, changes in consumer behaviour or demand, and pressure from stakeholders for greater mitigation and transparency. Investments in fossil fuels, which are excluded under CPP Investments' green bond framework but not its broader portfolio, are particularly exposed. As an asset manager, CPP Investments also faces more direct reputational risks, regulatory risks (e.g., increasing disclosure and other climate risk management requirements), and liability risks (e.g., lawsuits from beneficiaries related to inadequate climate risk management).

Environmental risks. For asset managers like CPP Investments, environmental risks are primarily through its financing, with diverse potential impacts on portfolio performance and reputation depending on the sector and geography of specific investments. Screening and mitigating actions should be undertaken to avoid threats to biodiversity and ecosystems, local pollution, water overuse, improper waste disposal, or other environmental risks most relevant to different investees.

Environmental strategies and policies

In 2022, CPP Investments made a new commitment to achieve net zero by 2050 for both its operations and portfolio across all asset classes and geographies. It has also pledged to achieve operational carbon neutrality (i.e., net zero for its Scopes 1 and 2 as well as Scope 3 business travel emissions) by end of its 2023 fiscal year, initially through purchasing carbon offsets, the quality criteria for which will be developed. CPP Investments informs us that it is in the process of establishing forward-looking metrics to assess portfolio emissions progress against its net zero commitment, which will be disclosed in future reports.

CPP Investments provides public disclosures on its sustainability strategy and performance through its Annual Report on Sustainable Investing. As of 2022, its estimated absolute financed Scope 1 and Scope 2 emissions across asset classes totalled 62.7 million tonnes carbon dioxide equivalent (CO₂e), with a weighted average carbon intensity of 46 tonnes of CO₂e per CAD million revenue for non-government holdings and 494 tonnes of CO₂e per CAD million revenue for government-issued securities. Its operational emissions were 4,208 CO₂e during its 2022 fiscal year. In 2021, its investments in renewable energy were CAD 7.7 billion.

Since 2018, CPP Investments has been aligning its reporting to the recommendations of the TCFD. It undertakes climate scenario analysis to evaluate the risks and impacts of investments, inform business plans and strategy, and provide public disclosures on portfolio resilience. It also undertakes climate change stress testing to determine possible financial impacts of climate events. Identified risks are then shared with and managed by the leaders of



each department during investment screening and approval, across the organization by the Risk & Business Intelligence group, and through Assurance and Advisory processes.

CPP Investments' net zero implementation approach for its portfolio will be guided by its Climate Change Principles, which promote supporting a whole economy transition. Per its newly launched decarbonization investment approach, CPP Investments has not divested from oil and gas companies or other heavy emitters (e.g., agriculture, chemicals, cement, steel, and heavy transportation), but will instead internally track its exposure to these sectors and work actively with these investees on transforming their business models for a low carbon future.

CPP Investments plans to increase its investment in green and transitional companies and projects from CAD 67 billion in 2021 to at least CAD 130 billion in 2030. CPP Investments defines green assets as those where at least 95% of revenues come from activities that align with International Capital Markets Associations (ICMA) Green Bond Principles' (GBP) suggested project categories and transitional assets as those that have a credible commitment to net zero and are making meaningful contributions to emissions reductions.

CPP Investments' approach to sustainable investing is outlined in its publicly available Policy on Sustainable Investing, which is applicable to all asset classes and geographies. Investment selection involves climate-related due diligence as well as review of other ESG factors. CPP Investments uses its Climate Change Security Selection Framework to quantify the potential financial impacts of physical and transition climate risks where material to Investment Decision Committee approval. While the Framework does not compel specific decisions based on thresholds of climate risks or performance, it requires consideration of these factors in investee selection and pricing processes.

General partners and external managers of CPP's assets complete an ESG due diligence questionnaire prior to selection and report any updates through an annual survey as part of post-investment monitoring. While there are no specific thresholds for screening out general partners and external managers on the basis of questionnaire responses, ESG factors are evaluated qualitatively alongside other material considerations and can be grounds for engagement over the course of an investment's lifecycle.

Once it has made an investment, CPP Investments prioritizes climate-related active engagement with investees based on internal and third-party research, consideration of materiality, time horizon, resource implications and likelihood of engagement success, and assessment of the most effective method for engagement. CPP Investments applies a custom heat map flagging opportunities to engage underperforming investees and promotes annual ESG disclosures and alignment with TCFD recommendations and Sustainability Accounting Standards Board (SASB) reporting guidance. It does not yet disclose what percentage of its investee engagements are climate-related, but reports that its efforts in this area have led to 17 companies making material improvements to their climate-related commitments, disclosures, and practices as of March 2021.

While CPP Investments is not pursuing blanket policies of divestment, in cases where companies risk permanently impairing shareholder value due to climate inaction, CPP Investments may make sell decisions. It has not set specific climate-related thresholds for divestment but will instead continue its active engagement approach until net zero commitment and other transition plan progress can be more clearly determined.

For publicly traded equities, CPP Investments also implements its portfolio climate strategy through proxy voting, guided by its Proxy Voting Principles and Guidelines and Climate Change Voting Policy. While not prescriptive on specific strategies, CPP Investments expects boards and executives to have integrated climate risks and opportunities into their strategy and operations, as well as to have undertaken climate-related disclosures consistent with long-term value creation. Where its climate physical and transition risk management expectations are not being met, CPP Investments will not support the reappointment of relevant directors, committees responsible for



oversight of climate change, and in some cases, the board chair or entire board. CPP Investments annually reports on these climate-related proxy voting decisions, and since March 2021 has voted against the reappointment of risk committee chairs at 42 companies.

Climate and sustainability issues are integrated into investment decisions primarily through CPP Investments' Sustainable Investing Group, which reports to the Chief Sustainability Officer and Global Head of Real Assets with oversight and strategic direction guidance from the President & CEO and Board of Directors.

Green bond framework

Based on this review, this framework is found to be in alignment with the Green Bond Principles. For details on the issuer's framework, please refer to the green bond framework dated June 2022.

Use of proceeds

For a description of the framework's use of proceeds criteria, and an assessment of the categories' environmental benefits, please refer to section 2.

Selection

CPP Investments' Sustainable Investment Committee (SIC) is responsible for evaluating whether proposed projects are eligible under the framework. Chaired by the Head of Sustainable Investing, the SIC includes the Managing Director in Sustainable Energies and the Managing Director in Energy and Resources as well as senior members from other teams across the organization. The SIC meets six times each year to take decisions on approving investments under the framework on a consensus basis.

Investments may be in companies or projects. To be considered, companies must derive at minimum 95% of their revenues from eligible green project categories, and direct investment in fossil fuels is excluded as a use of proceeds. Projects by companies that do not meet this threshold must meet the green project category criteria, while also contributing to part of a credible low carbon transition plan per CPP Investments' Climate Change Principles, such as a net zero commitment and strategy, as determined by the SIC.

Where available, CPP Investments also considers investments' climate disclosures and targets, climate risk assessment and TCFD reporting, other ESG-related initiatives such as deforestation safeguards, and data availability for future impact reporting. Tools and approaches for this due diligence include CPP Investments' Climate Change Security Selection Framework, ESG research reports, industry-specific materiality frameworks, and an ESG database.

Whether it is a majority or minority owner, compliance with the framework will be monitored on an ongoing basis and investments that become ineligible will be removed from the green bond registry and replaced. In 2021, CPP Investments' ownership in eligible projects under its past green bond frameworks ranged from 18-100%, with a majority at or above 50% ownership.

In addition to the exclusions specified in the green bond framework detailed below, additional exclusions across all investments include companies in violation of Canada's Anti-Personnel Mines Convention Implementation Act or Prohibiting Cluster Munitions Act, or those that would not comply if they operated in Canada. CPP Investments may also decide not to pursue or maintain investments for reasons such as lack of management engagement on ESG issues, brand and reputation concerns, and legal considerations.



Management of proceeds

Green bond net proceeds are tracked by CPP Investments' Head of Term Debt, a member of the SIC, and regularly reviewed by the broader SIC. According to CPP Investments, green bond proceeds will not be managed by any general partners or external managers.

The net proceeds from CPP Investments' Green Bond issuance will be deposited to CPP Investments' general account and an amount equal to the net proceeds will be earmarked for allocation to eligible investments. Eligible investments are added to the green bond register and allocation of proceeds is managed on a portfolio basis.

In an update from the issuer's previous green bond frameworks, any unallocated funds will be temporarily invested in cash, cash equivalents, or government securities, with preference given to green, social, and sustainable debt, or highly rated ESG securities where possible. Funds will not be allocated to investments that are inconsistent with a low carbon future (i.e., that drive investment in fossil fuel infrastructure per the framework's exclusion criteria).

The payment of principal and interest on any green bond will be made from CPP Investments' general fund and will not be linked to the performance of investments eligible under the framework.

Reporting

CPP Investments will provide annual reporting on the green bond section of its website, which will include the allocation of proceeds under this framework and associated impact on a portfolio basis, where feasible. The reporting process is managed by the SIC. In an update from previous green bond frameworks from the issuer, allocation of proceeds as well as impact metrics, where feasible, will be verified by an independent reviewer as well as through management attestation.

Reporting will include net proceeds, allocation by category, descriptions of investments, a breakdown of financing and refinancing, impact metrics, and any unallocated proceeds. While CPP Investments has not committed to reporting on specific impact metrics, where feasible, these may include:

Category	Indicators
Renewable energy	<ul style="list-style-type: none">• Annual renewable energy generation in MWh/GWh• Capacity of renewable energy constructed or integrated
Green buildings	<ul style="list-style-type: none">• Percentage of energy use reduced/avoided vs. local baseline/building code• Annual greenhouse gas (GHG) emissions reduced/avoided in tonnes of CO₂ equivalent vs. local baseline/baseline certification level• Amount of waste minimized, reused or recycled• Certification standard: type of scheme and certification level
Low carbon / clean transportation	<ul style="list-style-type: none">• Annual GHG emissions reduced/avoided in tCO₂e p.a.• Reduction of air pollutants, particulate matter (PM), sulphur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs)• Number of clean vehicles deployed• Kilometres of new or improved train lines/dedicated bus, bus rapid transit (BRT), light rail transit (LRT) corridors, bicycle lanes



Energy efficiency	<ul style="list-style-type: none">• Annual energy savings in MWh/GWh (electricity) and GJ/TJ (other energy savings)• Annual GHG emissions reduced/avoided in tonnes of CO₂ equivalent
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Table 1. Potential impact reporting indicators

CPP Investments informs us that it will continue to provide prorated impact estimates based on its ownership stake in a company or project.

Public reporting on the impacts of CPP Investments' previously issued bonds under its 2018 and 2021 frameworks has been published on its website. Investments made under the renewable energy category had similar renewable energy generation and capacity metrics, while previous impact reporting on green buildings did not include details on total GHG emissions or waste avoided.



2 Assessment of CPP Investments' green bond framework


The eligible projects under CPP Investments' green bond framework are shaded based on their environmental benefits and risks, based on the "Shades of Green" methodology.

Shading of eligible projects under the CPP Investments' green bond framework

CPP Investments' green bond framework will finance projects in four categories: renewable energy, green buildings, low carbon/clean transportation, and energy efficiency. These categories are the same as the issuer's 2021 green bond framework and do not include the sustainable water and wastewater management category from its 2018 framework. Compared to the 2021 issuance, green hydrogen is added to the renewable energy category and new performance thresholds are introduced to the energy efficiency category.

This framework allows for both financing and refinancing, with a lookback period of two years. There is no predetermined ratio between financing and refinancing. CPP Investments commits to notionally allocating net proceeds within a year of issuance. While CPP Investments has not committed to a specific expected allocation among project categories for this new framework, it expects a continued emphasis on renewable energy. Under previous green bond frameworks released in 2018 and 2021, CPP Investments allocated around 80% of the proceeds raised to seven renewable energy projects with 11.35 gigawatts (GW) gross capacity, and the remaining 20% to three green building projects certified as LEED Platinum.

Any direct investments in fossil fuel infrastructure are explicitly excluded. This includes but is not limited to fossil-fuel, fossil-based hydrogen, and bioenergy transportation systems, renewable energy that expands oil and gas capacity, power generation based on fossil fuels, and fuel switching (e.g., from oil to gas) in building heating system retrofits. This is an update from CPP Investments' previous green bond frameworks.

Category	Eligible project types	Green Shading and considerations
Renewable energy 	Acquisition, development, generation, transmission and distribution of renewable energy including: <ul style="list-style-type: none">• Wind power (offshore and onshore)• Solar power• Green hydrogen	Dark Green <ul style="list-style-type: none">✓ Renewable energy is a key part of the transition to a net zero future.✓ Renewable energy that expands the capacity of oil and gas production, such as wind turbines providing energy to offshore drilling operations, is explicitly excluded.✓ Wind and solar projects generate emissions across their lifecycle from material sourcing through end of life. The issuer



informs us it expects generation to be well below 100 gCO₂e/kWh measured on a lifecycle basis.

- ✓ Developing low-carbon hydrogen from water electrolysis rather than fossil fuel sources is important for the clean energy transition.
 - ✓ CPP Investments confirms that only renewable electricity from wind, solar, or hydropower with lifecycle emissions well below 100 gCO₂e/kWh will be used in eligible green hydrogen production projects, which is positive. It is unclear whether lifecycle emissions for green hydrogen overall will be below the relevant EU Taxonomy threshold of no more than 3tCO₂e/tH₂.
 - ✓ The end use of green hydrogen is not specified beyond stated exclusions, and could be emissions-intensive (e.g., if used to produce green ammonia for fertilizers, which could generate substantial on-field emissions). Assessing and mitigating potential rebound and lock in risks is important to ensure climate benefits.
 - ✓ Renewable energy technologies create biodiversity and local pollution risks during construction, operation, and decommissioning. CPP Investments informs us that consultants will undertake ESG-related due diligence for potential investments and present findings to its Investment Committee prior to acquisition to manage these considerations.
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Green buildings




Purchase, development and/or redevelopment of properties that have received or are expected to receive at least one of the following green building certifications:

- Leadership in Energy and Environmental Design (LEED) Platinum or equivalent levels in other certification programs such as DGNB Platinum, or BREEAM Outstanding

Medium Green

- ✓ Green building certification standards cover a broad set of issues that are important to sustainable development. At the same time, they differ considerably in their requirements for energy efficiency, embodied emissions of construction materials, related transportation emissions, and consideration of resilience.
- ✓ The issuer has confirmed with us that there are no energy or emissions performance criteria beyond certification requirements.
- ✓ Certification alone does not necessarily guarantee improvements compared to regulation or standard practice. Given the global nature of CPP Investments' assets, there will be significant variations in building regulations, making it important to consider the ambition and energy performance in each national context.
- ✓ The issuer informs us that real estate deals are assessed for climate risks at portfolio level under the Climate Security Selection Framework and these factors are incorporated into investment recommendations where appropriate. Asset-level climate resilience strategies and clean transportation options, however, are not necessarily included in its due diligence practices.
- ✓ According to the issuer, green buildings with fossil fuel-based heating systems may be eligible. While beyond the issuer's direct control, this creates potential lock in risks



		<p>over these assets' long lifespans and should be phased out as soon as possible.</p> <ul style="list-style-type: none"> ✓ The equivalence of different green buildings certifications is contested and to an extent subjective. We encourage CPP Investments to be transparent on its considerations in selecting equivalent certifications.
<p>Low carbon/clean transportation</p> 	<p>Development, deployment and operation of clean transportation assets including:</p> <p>Private transport:</p> <ul style="list-style-type: none"> • Electric or non-motorized transport vehicles <p>Public transport:</p> <ul style="list-style-type: none"> • Electric or non-motorized public transportation vehicles and fleets • Supporting infrastructure such as walkways, bike paths, and charging stations • Electrification of existing rail infrastructure <p>Transportation systems that rely on conventional fuels, hydrogen generated from fossil fuels, and/or bioenergy are excluded</p>	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Electric and non-motorized vehicles and public transportation, walkways, bike paths, and charging stations are well-aligned with a climate transition. ✓ The issuer informs us that hybrid vehicles are not eligible due to the fossil fuel exclusion and private transport will not include electric construction, mining equipment, or other heavy transport, so there is no risk of use for fossil fuel extraction or transportation. ✓ Despite their contribution to the climate transition, note that the production of electric and green hydrogen vehicles and sourcing of raw materials can have substantial climate and environmental impacts. ✓ The focus on electrification of existing rail infrastructure reduces potential lock in risks compared to the new construction eligible under previous frameworks. These railways could still potentially be used to transport fossil fuels.
<p>Energy efficiency</p>	<p>Develop, operate, and maintain renewable energy battery storage</p> <p>Development, deployment and operation of technologies, products, or systems that</p>	<p>Medium to Dark Green</p> <ul style="list-style-type: none"> ✓ Renewable energy battery storage is an important contribution to a net zero future.



provide significant improvements in energy efficiency (>30% per International Energy Agency and EU Taxonomy), examples including but not limited to:

- Renewable energy-powered district heating and cooling technologies, smart grids, sensors, load control systems, grid connectors, renewable energy battery storage

Investments that increase efficiency of fossil fuelled equipment or power plants are excluded

- ✓ Be aware that battery production and raw material sourcing can have climate and environmental impacts. There are also risks that this storage may be connected to high emitting end users.
- ✓ Energy efficiency is key to achieving a low carbon future. The 30% energy efficiency performance improvement (measured in terms of reduction in primary energy demand, or PED, according to the issuer) and fossil fuel exclusions are positive updates from previous frameworks.
- ✓ We encourage the issuer to thoroughly assess and mitigate lock-in and rebound effects, e.g., through the use of lifecycle assessments.
- ✓ According to the issuer, energy efficiency improvements in waste-to-energy district heating and cooling technologies are eligible under the framework. Waste-to-energy systems have lifecycle climate emissions that vary depending on whether the plant incinerates fossil fuel wastes (e.g., plastics), the share of organic material in the waste, and waste transportation modes and distances, as well as local air pollution risks.
- ✓ The issuer informs us that fossil fuel switching that may increase efficiency (e.g., from oil to natural gas) is not eligible under the framework. This is a positive exclusion from a climate risk perspective.

Table 2. Eligible project categories









3 Terms and methodology

This note provides CICERO Shades of Green’s (CICERO Green) second opinion of the client’s framework dated June 2022. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

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

‘Shades of Green’ methodology

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

Shading	Examples
 Dark Green is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.	 Solar power plants
 Medium Green is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.	 Energy efficient buildings
 Light Green is allocated to transition activities that do not lock in emissions. These projects reduce emissions or have other environmental benefits in the near term rather than representing low carbon and climate resilient long-term solutions.	 Hybrid road vehicles

The “Shades of Green” methodology considers the strengths, weaknesses and pitfalls of the project categories and their criteria. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised, including potential macro-level impacts of investment projects.

Sound governance and transparency processes facilitate delivery of the client’s climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client’s governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.



Assessment of alignment with Green Bond Principles

CICERO Green assesses alignment with the International Capital Markets' Association's (ICMA) Green Bond Principles. We review whether the framework is in line with the four core components of the GBP (use of proceeds, selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed. The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the selection process. CICERO Green assesses whether net proceeds or an equivalent amount are tracked by the issuer in an appropriate manner and provides transparency on the intended types of temporary placement for unallocated proceeds. Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	CPP Investments Green Bond Framework	CPP Investments' green bond framework dated June 2022
2	2021 Report on Sustainable Investing	Report on CPP Investments' sustainable investing approach and outcomes dated 2021
3	Climate Change Principles	CPP Investments' principles for managing climate risks and opportunities dated November 2021
4	Policy on Sustainable Investing	CPP Investments' sustainable investing policy dated 9 November 2021
5	Proxy Voting Principles and Guidelines	CPP Investments' guidelines and principles for proxy voting dated 9 February 2022
6	The Future of Climate Change Transition Reporting	CPP Investments Insights Institute's paper on transition reporting dated October 2021
7	Investing in the Path to Net Zero	CPP Investments' report on its net zero strategy dated February 2022
8	Green Bond Impact Report 2021	CPP Investments' report covering its green bond program's impacts from July 2020 through June 2021
9	Fiscal 2022 Annual Report	CPP Investments' annual report published May 2022
10	Investing to Enable an Economy-Wide Evolution to a Low-Carbon Future	CPP Investments' approach to support high emitting sectors' decarbonization published December 2021



Appendix 2: About CICERO Shades of Green

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

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

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

