



KfW

Green Bond Second Opinion

December 14, 2021

KfW is the promotional bank of the Federal Republic of Germany. One of the largest issuers of green bonds by volume, this Second Opinion considers the second update of KfW's 'Green Bonds – Made by KfW' framework. KfW's promotional mandate extends explicitly to the environment and, in 2020, 33% of total commitment volume (EUR 44.4bn) was allocated to what KfW terms the 'climate change and the environment megatrend'.

KfW's updated green bond framework introduces a clean transportation category alongside the existing energy efficiency (relating to buildings) and renewable energy categories. In 2022, KfW estimates it will allocate a majority of proceeds under energy efficiency loan programs, a smaller proportion under its renewable energy program, and a minor share under its clean transportation loan programs.

The eligibility criteria for new buildings under the energy efficiency category are ambitious: the Effizienzhaus/Effizienzgebäude 55 and 40 standards are around 26% and 46% more energy efficient than regulation respectively. From February 1, 2022, borrowers will no longer be able to apply for funding for the Effizienzhaus/Effizienzgebäude 55 standards (borrowers affected by the recent flooding in Germany can apply under the Effizienzhaus/Effizienzgebäude 55 standards until later in 2022). KfW excludes oil heating systems, and gas heating systems for single measures which do not have a 'renewable ready' component. Gas heating systems are therefore not excluded for new buildings or renovations. New buildings can be connected to district heating networks with fossil fuel inputs and such connections can also be financed for renovations or as a single measure. Both gas heating and fossil fuel district heating give rise to lock-in risk, however KfW notes that to achieve higher Effizienzhaus/Effizienzgebäude standards, district heating networks would need low fossil fuel input. The clean transportation category covers all transportation project types set out in the EU Taxonomy and there are no additional requirements beyond respective EU Taxonomy substantial contribution to climate change mitigation criteria. As the EU Taxonomy includes vehicles with emissions, such as plug-in hybrid passenger vehicles, a lock-in risk arises.

KfW targets a climate-neutral portfolio by 2050 and has introduced concrete steps to achieve this. For example, it has developed sector guidelines for six heavy emitting sectors which define the minimum requirements for financing in these sectors. KfW has a standardized selection process, whereby it reviews each application to assess compliance with the applicable loan program's eligibility requirements, and the involvement of on-lending banks reduces the risk of financing controversial or ineligible projects.

Based on the overall assessment of the project types in KfW's green bond framework, governance and transparency considerations, the green bond framework receives an overall **CICERO Medium Green** shading and a governance score of **Excellent**. To improve its green bond framework, KfW could develop a more targeted approach on non-zero emission vehicles and broaden its fossil-fuel heat source exclusions.

SHADES OF GREEN

Based on our review, we rate KfW's green bond framework **CICERO Medium Green**.

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in KfW's framework to be **Excellent**.



GREEN BOND PRINCIPLES

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





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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated January 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.

Expressing concerns with 'Shades of Green'

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

CICERO Shades of Green	Examples
 Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.	 Wind energy projects with a strong governance structure that integrates environmental concerns
 Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.	 Bridging technologies such as plug-in hybrid buses
 Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.	 Efficiency investments for fossil fuel technologies where clean alternatives are not available

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green 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.



2 Brief description of KfW's green bond framework and related policies

Kreditanstalt für Wiederaufbau (KfW) is the promotional bank of the Federal Republic of Germany. An institution under German law, KfW is 80% owned by the Federal Government and 20% owned by the Federal States. KfW and its major subsidiaries have around 80 offices globally and employ over 7,000 staff.¹

KfW has a diverse range of promotional and financing focus areas. In Germany, these include the promotion of small and medium sized companies, funding for municipalities and regional promotional banks, and education finance for retail customers. In 2020, around 79% of KfW's promotional business activities took place in Germany.

KfW's mandate extends to the environment, with a variety of loan programs in place aimed at environmental protection, for example in respect of energy efficient buildings, environmental innovation, industrial energy- and resource efficiency, clean transportation, and renewable energy. Indeed, the Federal Government has given KfW a mandate to evolve into a 'transformative promotional bank' as part of Germany's Climate Action Programme 2030, pursuant to which KfW will promote the transition to a carbon-neutral future.

KfW ranks among the largest issuers globally of green bonds by volume. In 2020, it issued 14 green bonds under its previous green bond framework, with a value of around EUR 8.35bn. 78.9% of all requests for disbursements were related to projects in the energy efficiency category, while 21.1% related to the renewable energy category (13.8% in wind, 7.1% in solar, 0.1% in biogas/biomass, and 0.1% in hydropower, heat/waste heat and other technologies). 93.1% of funds were invested in projects located in Germany, with the rest located in other EU countries.

The green bond framework considered in this Second Opinion is the second update of KfW's 'Green Bonds – Made by KfW' framework, first published in 2014 and subsequently updated in 2019. As well as certain developments to the existing project categories (renewable energy and energy efficiency), the green bond framework introduces a clean transportation category. This Second Opinion also considers developments in KfW's environmental strategies and policies since 2019.

Environmental Strategies and Policies

From 2018-20, KfW engaged in a 'Roadmap Sustainable Finance' project, which aimed to anchor sustainability across its operations. Relevant outcomes of the project included: 1) the adoption of a new sustainability mission statement, 2) the creation of an exclusions list, 3) the integration of the concept of Paris compatible financing, and 4) KfW's first report in accordance with TCFD recommendations.

KfW's sustainability mission statement was adopted in February 2019. It focuses most prominently on environmental concerns when addressing KfW's financing activities, which are to focus on four, what it calls, 'megatrends': 1) climate change and the environment, 2) globalization, 3) social change, and 4) digitalization and innovation. Given its particular importance, KfW has fixed a target share of at least 38% of new commitment

¹ KfW's main subsidiaries are: 1) KfW IPEX-Bank, which provides project and export financing, 2) Deutsche Investitions- und Entwicklungsgesellschaft mbH, which finances and advises German and local companies operating in developing countries and emerging economies, and 3) KfW Capital GmbH & Co KG which invests in funds to promote the expansion of the German and European venture capital and venture debt markets. KfW Development Bank, a division of KfW Group, performs specific roles in developing countries and emerging economies.



volume to the climate and environment ‘megatrend’. In 2020, 33% of total commitment volume was allocated to the climate change and the environment ‘megatrend’, totaling EUR 44.4bn.²

KfW has developed binding sustainability guidelines which apply to all its activities and define the specific requirements for environmental and social impact assessments. For investments and financing in emerging markets and developing economies, KfW undertakes environmental and social impacts assessments which screen for and require due diligence on potentially negative environmental or social impacts or risks. Due to the existence of higher levels of environmental and social regulation, KfW does not yet require further environmental and social impact assessments for projects in Germany, the EU or other OECD high-income countries. All financing and promotional activities must also adhere to KfW’s exclusions list. In respect of fossil fuels, for example, this excludes the prospecting, exploration and mining of coal, coal related infrastructure, and coal fired power plants.

KfW seeks to ensure its financing activities are Paris compatible – to this end, it targets a climate-neutral portfolio by 2050. One way KfW seeks to achieve this is through its introduction of Paris-compatible sector guidelines for six heavy emitting sectors,³ which define the minimum requirements for financing in these sectors.⁴ In respect of power generation, for example, annual commitment volume to natural gas power plants is limited to one-third until 2030, though oil and diesel power plants may also be financed in specific cases following strict examination.⁵ The guidelines are subject to regular review and will be adjusted according to scientific findings, technological development and market developments (among others). The ambition level of the requirements in the guidelines will also increase over time. To measure the emissions related to its portfolio, KfW is in the process of establishing a greenhouse gas accounting system and intends to publish the results once it has further improved the data quality.

In November 2020, KfW introduced the ‘transForm’ project to implement and further develop the sustainability concept developed in its ‘Roadmap Sustainable Finance’ project. This will be done through several sub-projects. As well as a sub-project on Paris compatibility (see above), the transForm program will also focus on 1) developing KfW’s sustainability governance, 2) introduction of a group-wide impact management system, 3) expanding the assessment of ESG risks in KfW’s risk management structures, 4) analysis of the EU Taxonomy and determining its role in formulating ambitious sustainability goals in the future.

KfW informed us that climate and transitional risks are considered as part of the technical/financial risk assessment on a project level. KfW also reports in accordance with TCFD recommendations, involving the use of various scenario analyses and a stress test considering physical and transition risks. KfW has also developed additional tools to ensure proper consideration of climate risks, for example the creation of a climate risk sector heatmap, and the undertaking of extended climate risk studies on eight sectors with high emissions and exposure to climate and transition risks.

KfW publishes an annual sustainability report on its website, prepared in accordance with GRI principles.

Use of proceeds

Proceeds under the green bond framework will finance or co-finance projects under certain KfW loan programs relating to renewable energy, energy efficiency, and clean transportation. In 2022, KfW estimates it will allocate a majority of proceeds under energy efficiency loan programs, a smaller proportion under its renewable energy program, and a minor share under its clean transportation loan programs. Use of proceeds under the energy efficiency and clean transportation categories is limited to new projects. KfW informs us that, in principle, its

² KfW notes in its sustainability report that, once KfW’s special coronavirus aid programs are accounted for, the figure allocated to the climate change and the environment ‘megatrend’ in 2020 was 50%.

³ Power generation, buildings, shipping, automotive, iron, and aviation.

⁴ https://www.kfw.de/nachhaltigkeit/Dokumente/KEa4/ENG_Kundenversion-Paris-kompatible-Sektorleitlinien.pdf.

⁵ According to the background paper on the Paris-aligned sector guidelines, any investments in oil and diesel power plants will first be multiplied with a predefined factor before being counted towards the overall one-third cap on commitment volume to natural gas power plants.



renewable energy loan program can support the acquisition of used renewable energy plants, however debt rescheduling and refinancing of projects that have already started or have been completed are excluded from financing.

Renewable energy

Proceeds will finance or co-finance projects under KfW's 'Renewable Energies – Standard' (program no. 270) which is dedicated to renewable energies for electricity generation, combined electricity and heat cogeneration, and measures to integrate renewable energy into the energy system. Financed renewable energy projects in Germany must comply with the German Renewable Energy Sources Act that defines subsidies and regulations for renewable energy technologies as well as project planning and installation measures.⁶ KfW states that, in the past, wind energy projects and photovoltaic panels represented the predominant share of investments under program no. 270.⁷

Excluded are: 1) plants for the generation of power or heat using fossil fuel as well as plants that are directly linked to power or heat generated on the base of fossil fuels, and 2) any equipment for the use of nuclear power. Financing under program 270 is not limited to projects located in Germany: projects are eligible if the borrower is a German company or sole proprietor, a subsidiary of German company, or a joint venture with at least 25% German participation.

Energy efficiency

Proceeds will finance or co-finance projects under KfW's 'Federal Funding for Efficient Buildings' (BEG) loan program (program nos. 261-4), relating to the acquisition and construction of new residential, commercial, and municipal buildings in Germany, and the renovation of such buildings. Acquisition is limited to the first-time acquisition of new buildings from developers.

More specifically, proceeds can finance or co-finance:

- 1) Construction of new energy-efficient buildings, including passive houses, which use 75% or less primary energy compared to the requirements of the current German Building Energy Act.⁸ Such buildings are compliant with the following Effizienzhaus/Effizienzgebäude standards: 55, 55(E), 55(NH), 40, 40(E), 40(NH), or 40(plus).⁹ Investors should note that loan applications for the Effizienzhaus/Effizienzgebäude 55, 55(E) or 55(NH) can only be submitted until 31 January 2022.¹⁰

⁶ Erneuerbare-Energien-Gesetz (2017, as amended).

⁷ According to KfW's Allocation Report (2020), in 2020 wind energy accounted for 13.8% of disbursement requests under eligible loan programs and solar energy accounted for 7.1%. No other renewable energy sources accounted for more than 0.1% of all disbursement requests in 2020.

⁸ Gebäudeenergiegesetz (2020).

⁹ Effizienzhaus/Effizienzgebäude standards reflect the energy efficiency of buildings compared to a reference building as determined under the German Building Energy Act. The number of the Effizienzhaus/Effizienzgebäude standard reflects the percentage of a building's primary energy demand compared to the reference building e.g. under Effizienzhaus/Effizienzgebäude 55, a building's primary energy demand cannot exceed 55% of the reference building's primary energy demand. Each Effizienzhaus/Effizienzgebäude standard also has requirements in respect of transmission heat loss e.g. under Effizienzhaus/Effizienzgebäude 55, a building's transmission heat loss cannot exceed 70% of the reference building's transmission heat loss. To comply with an 'EE' Effizienzhaus/Effizienzgebäude standard, it is an additional requirement that 55% of a building's energy requirements are met by an installed renewable energy heating system. To comply with an 'NH' Effizienzhaus/Effizienzgebäude standard, a building must be issued with a separate sustainability certificate.

¹⁰ Borrowers affected by the recent catastrophic flooding in Germany can apply under the Effizienzhaus/Effizienzgebäude 55 standards until later in 2022 (probably around June 30, 2022, according to KfW).



- 2) Renovation of existing buildings which, after completion of the refurbishment measures, achieve the energy standard of an Effizienzhaus/Effizienzgebäude 100 or better.¹¹ KfW informed us that no minimum energy efficiency improvement is required to qualify. KfW noted, however, that because the subsidies available for refurbishment increase with energy savings, ambitious projects are incentivized. Moreover, it noted that Effizienzhaus/Effizienzgebäude 100, which a building must at least achieve after renovation, is considerably better than regulation: KfW informed us that, according to calculations by the Fraunhofer-Gesellschaft, only 10-15% of existing buildings in Germany achieve the energy standard of an Effizienzhaus/Effizienzgebäude 100.
- 3) Single measures to save energy and reduce CO₂ emissions of buildings that fall thereafter under the scope of the German Building Energy Act, including measures on the building envelope, plant engineering (excluding heating) and heat generation plants, heating optimization and technical planning and construction supervision. Example measures contained in programs 261-4 are the renewal and optimization of heating systems, summer heat protection, and the installation or replacement of windows. KfW informs us that ‘plant engineering’ refers to measures outside of heating and insulation, for example ventilation or smart control. All single measures must meet the minimum technical requirements contained in each loan program.

For the construction of new buildings and renovations, an independent and accredited energy efficiency expert must be engaged for professional consulting and energy efficiency planning processes before the construction phase. This expert delivers an energy efficiency confirmation as part of the loan application, and confirms successful implementation of KfW financed energy efficiency measures after project completion and the achievement of the targeted efficiency level. This is also recommended, though not compulsory, in respect of single measures.

Excluded under the energy efficient project category are: 1) gas heating systems for single measures without a renewable ready component, and 2) oil heating systems. Gas heating systems are therefore not excluded for new buildings or renovations, however KfW states that borrowers would have to invest heavily in others aspect of the building envelope to compensate for such heating and achieve the requisite energy use requirements, and that it is almost impossible to achieve the most highly subsidized standards with pure gas heating. According to KfW, ‘renewable ready heating’ means a gas condensing boiler that is prepared for later use as a hybrid heating system, for example in combination with a thermal solar system. KfW informed us that ‘renewable ready’ heating is most common in renovation projects, somewhat less common in Effizienzhaus/Effizienzgebäude 55 buildings, and rare in Effizienzhaus/Effizienzgebäude 40 buildings.

KfW has confirmed that new buildings can be connected to district heating networks with fossil fuel inputs. For new buildings, oil-based heat generation in heating networks may supply a maximum of 10% of the network's annual amount of heat. While there is no equivalent restriction on gas, KfW notes that connection to a network with high gas content would require borrowers to invest heavily in others aspect of the building envelope to compensate for such heating and achieve the requisite energy use requirements. Connection to such networks can also be financed as part of renovations or as a single measure, however KfW informed us that to achieve higher Effizienzhaus/Effizienzgebäude standards, district heating networks would need low fossil fuel input.

KfW believes a large majority of proceeds in the energy efficiency project category will go to new buildings and that the removal of Effizienzhaus/Effizienzgebäude 55 standard from its loan programs from February 1, 2022 (unless a borrower is a victim of the recent catastrophic flooding in Germany) will not reduce the proportion of proceeds it will allocate to new buildings under its green bond framework i.e. it believes demand for Effizienzhaus/Effizienzgebäude 40 will increase accordingly. KfW provided us with figures for the third quarter of 2021, showing that Effizienzhaus/Effizienzgebäude 55 standards accounted for around 74% of disbursement requests, while the Effizienzhaus/Effizienzgebäude 40 standards accounted for around 26%.

¹¹ Effizienzhaus/Effizienzgebäude 100 is the reference building determined under the German Building Energy Act that satisfies the minimum requirements under the under the German Building Energy Act in respect of energy efficiency.



Clean transportation

Proceeds will finance or co-finance projects under KfW's loan programs 'Sustainable Mobility for Municipalities' (program no. 267) and 'Sustainable Mobility for Corporates' (programs 268 and 269), relating to clean transportation projects in Germany. In principle, all clean transportation project types contained in Section 6 of Annex 1 to the EU Taxonomy are eligible for proceeds under programs 267-9.

KfW classifies clean transportation projects into three categories: 1) climate friendly vehicles for passenger transport and light commercial vehicles, 2) climate friendly vehicles for freight transport, and 3) infrastructure for climate friendly transport. Eligibility criteria is based on the 'substantial contribution to climate change mitigation' criteria contained in Section 6 of Annex 1 to the EU Taxonomy, which are documented as 'minimum technical standards' accompanying the general program requirements. Data-driven network solutions to reduce GHG emissions and digital networking for better and more efficient organization of mobility are also eligible for proceeds. According to KfW, this includes, for example, digital parking management, intelligent traffic systems, and digital solutions for a better combination of different types of clean transportation.

Transport systems and infrastructure dedicated to the transport of fossil fuels are excluded.

Selection

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

KfW defines detailed formal eligibility requirements for its loan programs. For the purposes of the current green bond framework, the relevant loan programs are 'Renewable Energies – Standard' (program no. 270), 'Federal Funding for Efficient Buildings' (program nos. 261-4), 'Sustainable Mobility for Municipalities' (program no. 267) and 'Sustainable Mobility for Corporates' (program nos. 268-9). Loans are extended indirectly to the borrower via intermediaries (such as commercial banks or local saving banks) – these financial institutions apply their regular loan procedures, assume the liability for repayment, and screen against the respective program's eligibility criteria. Alternatively, in the case of municipalities, KfW can extend loans directly to the borrower.

In both circumstances, KfW reviews the individual application to assess compliance with the applicable loan program's eligibility requirements. For projects located outside of the EU or OECD high-income countries, KfW also screens eligible green projects according to its environmental and social risk management frameworks that set out general environmental and social due diligence procedures. For projects in the EU or other OECD high-income countries, due to more comprehensive environmental protection regulations and their application by responsible authorities, KfW does not yet explicitly require further environmental and social impact assessments. KfW's exclusion list applies to all loans, regardless of location. Once a loan for these specific promotional programs has been approved, it will automatically qualify as an eligible green project.

Management of proceeds

CICERO Green finds the management of proceeds of KfW to be in accordance with the Green Bond Principles.

KfW uses segregated, internal registers – one for each calendar year – to track net proceeds. An amount equal to the net proceeds of a green bond issuance is entered in the relevant register. On a monthly basis, KfW allocates the amount matching requests for disbursements for eligible green projects to the register. The European Central Bank's exchange reference rate applies to non-EUR denominated bonds and KfW expects full allocation of proceeds by the end of the year of issuance.



KfW's green bonds can be increased ('tapped'). In such cases, they will be treated like newly issued bonds. This might lead to differences in reporting of use of proceeds and impacts of the bond, in cases the bond was issued in a different year than it was tapped.

KfW informed us that until full allocation, proceeds are part of KfW's general liquidity management. Since the green bonds' annual funding share is below KfW's annual sustainable financing share, KfW confirmed unallocated proceeds cannot be used for fossil fuel related investments.

Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

KfW will produce two reports in respect of each calendar year, published on its website: one on allocation and the other on impact. KfW informed us that its reporting will be compiled by experts from its treasury department. Under its transForm project, KfW is introducing a group-wide impact management system. Once this is in place, KfW may calculate impacts internally, whereas impacts are currently calculated or evaluated by external institutions which are monitored by KfW's group strategy department which is actively involved in regular program effectiveness evaluation procedures.

The allocation report is prepared for each calendar year and shows aggregate data (no project-by-project data). It will show: 1) amount of allocated proceeds issued in the respective calendar year, 2) amount of unallocated proceeds issued in the respective calendar year (if any), 3) breakdown by eligible category of the cumulated requests for disbursements of the respective calendar year, 4) breakdown by country of the cumulated requests for disbursements of the respective calendar year.

The impact report will be published once the impact of the underlying loan programs has been evaluated for the respective year. It will cover a range of core indicators for the respective year showing aggregate data (no project-by-project data), in accordance with ICMA's 'Handbook Harmonized Framework for Impact Reporting'. Methodologies and assumptions used to calculate impacts will be included in the impact report. The core indicators may include:

- **Renewable Energy:** Annual greenhouse gas (GHG) emissions reduced/avoided (tCO₂e); annual renewable energy generation (MWh); capacity of renewable energy added (MW)
- **Energy Efficiency:** Annual greenhouse gas (GHG) emissions reduced/avoided (tCO₂e); annual energy savings (MWh)
- **Clean Transportation:**
 - o Annual greenhouse gas (GHG) emissions reduced/avoided in tonnes of CO₂ equivalent p.a. KfW informed us that the benchmarks use to calculate avoided emissions will be selected and developed according to the types of projects financed, for example the benchmark will differ when calculating climate friendly vehicles compared to climate friendly transport infrastructure
 - o (to the extent available) passenger-kilometres (i.e. the transport of one passenger over one kilometre) and/or passengers; or tonne-kilometres (i.e. the transport of one tonne over one kilometre) and/or tonnes



- (to the extent available) 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).

In addition, KfW loan programs relevant for this green bond are subject to yearly external monitoring evaluations to assess the programs' effectiveness in supporting the Federal Republic of Germany's ambition to increase the share of renewable energy, energy efficiency, and the use of clean transportation options. Once KfW's group-wide impact management system has been introduced, this undertaking may be done internally.

KfW has published allocation and impact reports on its website for the duration of its previous framework, in accordance with the reporting commitments in its previous framework.



3 Assessment of KfW’s green bond framework and policies

The framework and procedures for KfW’s green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where KfW should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in KfW’s green bond framework, we rate the framework **CICERO Medium Green**.

Eligible projects under KfW’s 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 bonds aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the “overall environmental profile” of a project should be assessed and that the selection process should be “well defined”.

Category	Eligible project types	Green Shading and some concerns
 Renewable Energy	<p>All projects financed or co-financed under the KfW loan programme “Renewable Energies – Standard” (programme no. 270) which provides financings for the construction, expansion, modernisation and acquisition of plants generating power or heat from renewable energy sources that comply with the requirements defined by the German Renewable Energy Sources Act (<i>Erneuerbare-Energien-Gesetz</i>, as amended). This covers in particular the following project types:</p> <ul style="list-style-type: none"> • Wind energy (including both onshore and offshore windmills); • Photovoltaic panels; • Hydropower (excluding plants with an installed power exceeding 20MW); • Electricity and heat generated in combined heat and power stations from solid biomass (only up to a size of 2MW), biogas or geothermal; • Biogas energy; • Grids and plants for the storage of heat or power, feed-in by renewable energy. 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Renewable energy is key to a low-carbon transition. KfW expects between 10-20% of proceeds in 2022 to be allocated to the renewable energy project category. ✓ According to KfW, in the past, wind energy projects and photovoltaic panels represented the predominant share of investments. This is expected to remain the case under this green bond framework. ✓ Renewable energy projects can have adverse local environmental impacts and impacts on local communities. According to KfW, it only finances renewable energy projects which i) satisfy local legal requirements in these respects, or ii) in the case of projects outside of the EU or OECD high-income



Excluded are:

- Plants for the generation of power or heat using fossil fuel as well as plants that are directly linked to power or heat generated on the base of fossil fuels;
- Any equipment for the use of nuclear power.

countries, have undergone screening according to KfW's environmental and social risk management frameworks.

✓ KfW informed us that the on-lending banks consider both physical and transitional risks as part of the technical and financial risk assessment in all regions according to local authorities/regulatory approval processes.

✓ KfW informed us that life cycle assessments are not carried out. Emissions are associated with construction processes (e.g. fossil fuel machinery, cement, and steel) and supply chains of energy generation technology (e.g. solar cell production). Geothermal plants, for example, can be associated with large associated emissions and the EU Taxonomy contains a 100g/kWh lifecycle emission threshold. KfW has confirmed there is no equivalent threshold for financing geothermal projects. Geothermal projects have so far played only a negligible role under program 270: according to KfW, in 2020 and year to date 2021, no geothermal plant was financed.

✓ KfW has confirmed that palm oil can in principle be a feedstock at financed bio-energy projects. This carries a risk of associated deforestation. According to KfW's exclusion list, palm oil or wood producers must comply with RSPO or FSC, however producers can also comply if they are in the process of achieving compliance. In 2020, biogas/biomass systems accounted for no more than 0.1% of all requests for disbursements.

Energy Efficiency	All projects financed or co-financed under the KfW loan programme "Federal Funding for Efficient Buildings' (BEG)" (programme nos. 261,	Light to Medium Green
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262, 263, 264) which provides financing for the acquisition and construction of new and the energy-efficient renovation (incl. individual measures) of existing residential, commercial and municipal buildings in Germany. This covers the following categories:

- Construction of new energy-efficient buildings, including passive houses, which use 75% or less primary energy compared to the requirements of the current German Building Energy Act (*Gebäudeenergiegesetz, GEG*). Such buildings are compliant with the so-called *Effizienzhaus/Effizienzgebäude 55/ 55(EE)/ 55(NH) / 40/ 40(EE)/ 40(NH)* or 40(plus) standards;
- Renovation of existing buildings which, after completion of the refurbishment measures, achieve the energy standard of an *Effizienzhaus/Effizienzgebäude 100* or better;
- Single measures to save energy and reduce carbon dioxide (CO₂) emissions of buildings that fall thereafter under the scope of the currently valid *GEG*, including measures on the building envelope, plant engineering (excl. heating) and heat generation plants, heating optimization and technical planning and construction supervision.

Excluded are:

- Gas heating systems for single measures without a renewable ready component as well as oil heating systems.

The eligible categories in relation to energy efficiency in buildings (new construction, refurbishment, single measures) are included in the catalogue of economic activities of the EU Taxonomy for the environmental objective climate change mitigation, included in Section 7 “Construction and real estate activities” of Annex 1 to the Commission Delegated Regulation (EU), published on 4 June 2021, supplementing the EU Taxonomy. The energy consultation component of the promotional scheme BEG is closely linked to Section 9.3. “Professional services related to

✓ KfW expects between 70-80% of proceeds in 2022 to be allocated to the energy efficiency project category. Of this, KfW believes the largest share of proceeds under this project category will go to the construction of new buildings.

✓ New buildings under the *Effizienzhaus/Effizienzgebäude 55* standards are around 26% more energy efficient than German regulation and new buildings under the *Effizienzhaus/Effizienzgebäude 40* standards are around 46% more energy efficient than German regulation. These are significant energy savings.

✓ From a climate point of view, refurbishments of existing buildings is often better than new construction. Refurbishments should, however, ideally come with high energy efficiency improvements. KfW does not specify a minimum energy efficiency improvement to qualify for proceeds. More ambitious refurbishments are, however, incentivized by larger subsidies. Moreover, after refurbishment, buildings must achieve the energy standard of an *Effizienzhaus/Effizienzgebäude 100* or better. According to KfW, is *Effizienzhaus/Effizienzgebäude 100* considerably better than German regulation: according to calculations by the Fraunhofer-Gesellschaft, only 10-15% of existing buildings in Germany achieve the energy standard of an *Effizienzhaus/Effizienzgebäude 100*.

✓ The single measures contain a range of measures that vary in their environmental impact. Single measures such as the insulation of walls and roofs, and the installation of energy efficient windows and doors, can help to reduce energy use with little risk. All single measures must meet the minimum technical requirements contained in the respective loan programs.



energy performance of buildings” of the same Annex 1.

- ✓ The three energy efficiency categories do not focus on broader environmental considerations such as water consumption, local environmental impact, construction material and public transport access. KfW furthermore informed us that life cycle assessments are not carried out.
- ✓ KfW states in the green bond framework that the eligibility criteria for new buildings and renovations up to 5000m² satisfy the EU Taxonomy’s substantial contribution to climate change mitigation criteria in respect of such investments. According to KfW, some of the DNSH criteria are met, however given there is currently a lack of guidance as to the way to proof compliance with the DNSH (to which extent compliance with the legal framework is sufficient), a statement as regards compliance with the DNSH can only be made at a later stage.
- ✓ KfW informed us that the on-lending banks consider both physical and transitional risks as part of the technical and financial risk assessment in all regions according to local authorities/regulatory approval processes.
- ✓ KfW’s exclusion of oil heating and gas heating systems for single measures without a renewable ready component represents an increase in ambition from its previous green bond framework. Under this exclusion, gas heating systems are not excluded for new buildings or renovations, however KfW states that borrowers would have to invest heavily in others aspect of the building envelope to compensate for such heating and achieve the requisite energy use requirements, and that it is almost impossible to achieve the most highly subsidized standards with pure



gas heating. According to KfW, 'renewable ready heating' means a gas condensing boiler that is prepared for later use as a hybrid heating system, for example in combination with a thermal solar system. KfW noted that renewable ready heating systems are rarely used in Effizienzhaus/Effizienzgebäude 40 standards and that, in any event, they must provide at least 50% of heat from renewable energy once retrofitted. Moreover, KfW informed us that there is a requirement to retrofit the renewable energy component within two years. This reduces the possibility of the system being used as pure gas heating system indefinitely, however, once retrofitted, up to 50% of heat may still come from gas.

- ✓ KfW has confirmed that new buildings can be connected to district heating networks with fossil fuel input. For new buildings, oil-based heat generation in heating networks may supply a maximum of 10% of the network's annual amount of heat. While there is no equivalent restriction on gas, KfW notes that connection to a network with high gas content would require borrowers to invest heavily in others aspect of the building envelope to compensate for such heating and achieve the requisite energy use requirements. Connection to such networks can also be financed as part of renovations or as a single measure, however KfW stated that in order to achieve higher Effizienzhaus/Effizienzgebäude standards, district heating networks would need low fossil fuel input. While the fossil fuel input in such networks may fall as a result of transition efforts, this nonetheless gives rise to a lock-in risk, particularly when borrowers are not aiming for the highest Effizienzhaus/Effizienzgebäude standards.



Clean

Transportation



All projects financed or co-financed under the KfW loan programmes “Sustainable Mobility for Municipalities” (programme no. 267) and “Sustainable Mobility for Corporates” (programme nos. 268 and 269) which provide financing for sustainable and climate friendly mobility in Germany.

In principle, all clean transportation project types as set forth in Section 6 “Transport” of Annex 1 to the Commission Delegated Regulation (EU), published on 4 June 2021, supplementing the EU Taxonomy, are eligible for financing under these loan programmes. They can be classified into the following categories:

- Climate friendly vehicles for passenger transport and light commercial vehicles, including e.g.
 - Urban and suburban public transport (e.g. light rail vehicles, metros, trams, busses with zero CO₂ emissions);
 - Passenger cars or light commercial vehicles with low or zero CO₂ emissions;
 - Devices for active mobility (e.g. e-bicycles).
- Climate friendly vehicles for freight transport, including e.g.
 - Freight rail transport;
 - Freight transport services by road with low or zero CO₂ emissions.
- Infrastructure for climate friendly transport, including e.g.
 - Infrastructure for public transport;
 - Infrastructure enabling low-carbon road transport (e.g. EV charging stations, hydrogen filling stations);
 - Infrastructure for rail transport;
 - Infrastructure for active mobility (e.g. bike lanes).

The eligibility criteria for the measures within the presented KfW loan programmes are based on the substantial contribution criteria defined in Section 6 “Transport” of Annex 1 and are documented as “Minimum technical standards” accompanying the general KfW programme requirements.

Light Green

✓ This project category includes all shades of green. In the context of uncertainty as to what types of projects will likely be financed, the overall Light Green shading reflects the possibility that a sizeable share of financing could go to vehicles with emissions (e.g. plug-in hybrids).

✓ The EU Taxonomy includes a wide range of possible investments in respect of clean transportation, many of which are part of a 2050 solution. The EU Taxonomy also includes vehicles with emissions. For example, until 2026 plug-in hybrid passenger cars and other light duty vehicles not engaged in the transportation of freight with emissions lower than 50gCO₂/km can qualify. Neither must interurban buses be zero-emission before 2026 to fall under the EU Taxonomy, while heavy duty vehicles can be low emission where being zero-emission is technologically or economically unfeasible. Such vehicles give risk to lock-in risk and tend to be Light Green in the German context. KfW will not prioritize zero emission over low emission vehicles, however it assumes that, in respect of passenger cars, it will finance more electric vehicles than plug-in hybrids.

✓ KfW informed us there are no additional criteria beyond the EU Taxonomy’s substantial contribution to climate change mitigation criteria for clean transportation. KfW is therefore unable to prioritize the most ambitious or low risk projects: there is no consideration of important sources of associated emissions, for example from supply chain (e.g. use of recycled or re-useable materials in the manufacture of vehicles), the construction process (e.g. fossil fuel machinery used during the construction or maintenance of transport



In addition to projects specified in Section 6 “Transport” of Annex 1, as listed above, the following measures, also contributing to a sustainable and climate friendly mobility, are eligible within the programmes:

- Data-driven solutions to reduce GHG emissions and digital networking for better and more efficient organization of mobility.

Excluded are:

- Transport systems and infrastructure that are dedicated to the transport of fossil fuels.

infrastructure), or fossil fuel heating on public transport or at transport depots.

- ✓ KfW does not undertake lifecycle assessments or require them from borrowers. It notes, however, that particularly in respect of large public transportation projects, borrowers often must consider life-cycle factors as part of the regulatory or planning process.
- ✓ KfW does not currently consider the EU Taxonomy’s do no significant harm criteria, however in respect of clean transportation many of these criteria are requirements that have been enacted into German law.
- ✓ KfW informed us that the on-lending banks consider both physical and transitional risks as part of the technical and financial risk assessment in all regions according to local authorities/regulatory approval processes.
- ✓ In respect of data-driven solutions and digital networking, KfW has informed us that i) to be eligible, GHG emissions savings must exceed GHG emissions caused by the measure, and 2) measures leading to an increase in motorized individual transport are excluded.

Table 1. Eligible project categories

Background

There is a substantial need for more renewable energy production, including solar and wind installations. Positive trends are being witnessed in the renewable energy space. In its Renewables 2020 report, the IEA calculated that renewable energy production capacity would grow by nearly 4% in 2020, reaching almost 200 GW.¹² In this respect, Germany is targeting its renewable output to increase by 35% by 2020 and 65% by 2030 compared to 1990 levels.

The building sector accounts for over 40% of primary energy consumption in most countries. Investing in green and energy efficient buildings therefore plays a key role in the energy transition, with passive house technology expected to become mainstream and the energy performance of existing buildings greatly improved through refurbishments. Indeed, the IEA reports that the efficiency of building envelopes needs to improve by 30% by

¹² <https://www.iea.org/reports/renewables-2020?mode=overview>



2025 to keep pace with increased building size and energy demand.¹³ Moreover, the IEA's Sustainable Development Scenario suggests 50% of new constructed building area in 2030 to be near zero emissions, in addition to increased use of renewable energy sources by up to 25% in 2030.¹⁴ The German government intends to reduce emissions from the building sector by 67% by 2030 compared to 1990 levels, and targets a reduction in primary energy consumption by 50% by 2050, both compared with 2008 levels.

Despite energy efficiency improvements and increased electrification and the use of alternative fuels, transportation is responsible for 24% of direct CO₂ emissions from fuel combustion, with road vehicles accounting for nearly three quarters of these emissions.¹⁵ According to the IPCC, the largest amount of emissions savings from transport come from switching from inefficient modes of transport (e.g., private cars) to mass transit.¹⁶ For projects aimed at like-for-like replacement of transport infrastructure, the improvements in environmental performance depend on the fuel type and efficiency. While electric modes of transportation are preferable to those that directly use fossil fuels, there remain emissions associated with their production and use.

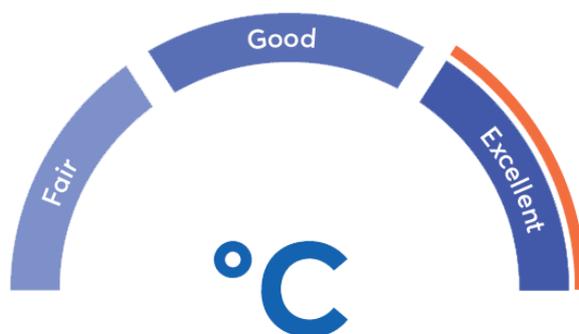
EU Taxonomy

The EU Taxonomy, first introduced in 2020, seeks to set out common classification system to determine the environmental sustainability of activities. It is based on six environmental objectives, including climate mitigation and climate change adaptation. To be considered environmentally sustainable, an activity must 1) substantially contribute to one or more of the six objectives; 2) not significantly harm any of the six objectives; 3) comply with minimum safeguards regarding e.g., human rights and labor issues; and 4) comply with the technical screening criteria ("TSC") which detail the conditions for parts one and two. The EU published its TSC for the first two environmental objectives (climate change mitigation and climate change adaptation) in April 2021. The EU Taxonomy contains TSC for several of the project categories or project types in KfW's green bond framework, for example certain renewable energy types, real estate and clean transportation. While some of KfW's project categories make express reference to the TSC, screening against the EU Taxonomy is not part of CICERO Shades of Green's scope of work.

Governance Assessment

Four aspects are studied when assessing the KfW's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

KfW has ambitious and clear environmental targets and strategies in place such as a climate neutral portfolio by 2050, Paris compatible financing, and a target share of at least 38% of new commitment volume to its climate change and the environment 'megatrend'. KfW has introduced concrete steps to achieve its targets, for example its exclusion list and the development of its sector guidelines for six heavy emitting sectors which define the minimum requirements for financing in these sectors. Moreover, KfW is taking necessary ancillary steps to facilitate the



¹³ <https://www.iea.org/reports/building-envelopes>

¹⁴ <http://www.iea.org/tcep>

¹⁵ <https://www.iea.org/topics/transport>

¹⁶ https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter8.pdf



achievement of these targets in the long run, for example developing its capabilities to measure and monitor impacts, expanding the assessment of environmental risks in existing risk structures, and reporting in accordance with TCFD recommendations.

KfW has a transparent and standardized selection process, with its loan programs containing detailed formal eligibility requirements. KfW reviews the individual application to assess compliance with the applicable loan program's eligibility requirements, and the involvement of on-lending banks reduces the risk of financing controversial or ineligible projects. On the other hand, the selection process can be inflexible given the reliance on the formal eligibility requirements in the loan programs. Particularly in respect of the broad clean transportation category, this means KfW is unable to prioritize more ambitious projects or those with less risk.

KfW has a history of reporting on allocation and impacts under previous green bond frameworks and has committed to reporting in the same manner under this green bond framework. This is a welcome commitment to consistency and transparency. Under its transSForm project, KfW is introducing a group-wide impact management system which should allow it better to harness the expertise it has developed in this respect – this can also contribute to ensuring high quality green bond reporting.

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

Strengths

By targeting a large share of Germany's green building market, KfW is seeking to drive a large portion of the market towards ambitious increases in energy efficiency. New buildings financed under the energy efficiency project category demonstrate significant ambition, exceeding German regulation by more than 25%. This ambition will increase further when the Effizienzhaus/Effizienzgebäude 55 standards are no longer financed under the loan programs from February 1, 2022 (unless a borrower is a victim of the recent catastrophic flooding in Germany), with Effizienzhaus/Effizienzgebäude 40 standards around 46% better than German regulation.

The mandatory involvement of external and certified energy efficiency experts in the potential borrower's building design phase as well as the external certification after project completion constitutes best practice and will help to ensure eligibility criteria are met. It is also a strength that KfW has included refurbishments in its green bond framework as refurbishments are often better than new construction from a climate point of view.

We welcome the inclusion of a clean transportation category in KfW's updated green bond framework. Transportation emissions remain comparatively high in Germany and KfW's inclusion of this high emitting sector therefore constitutes a strength. Under the criteria, certain important forms of transportation (from a 2050 perspective) that can be financed must be zero-emission, for example urban public transport.

Weaknesses

We find no obvious weaknesses in KfW's green bond framework.

Pitfalls

KfW does not undertake lifecycle assessments as part of its standard process and lifecycle considerations are not part of the eligibility criteria of its loan programs. Lifecycle emissions can have a large effect on the impact of projects and should be considered and mitigated where possible. KfW notes, however, that particularly in respect of large public transportation projects, borrowers often must consider life-cycle factors as part of the regulatory or planning process.

KfW informed us that physical and transitional risks are part of the technical and financial risk assessment in all regions according to local authorities/regulatory approval process. While welcome, this is not a particularly



systematic approach, and relies on-lending banks and the adequacy of local authorities/regulatory approval process.

We welcome KfW's exclusion of gas heating systems for single measures without a renewable ready component, and oil heating systems. Under this exclusion, gas heating systems are not, however, excluded for new buildings or renovations – this can lead to a substantial risk of emission lock-in. KfW states, however, that borrowers would have to invest heavily in others aspect of the building envelope to compensate for such heating and achieve the requisite energy use requirements, and that it is almost impossible to achieve the most highly subsidized standards with pure gas heating. According to KfW, 'renewable ready heating' means a gas condensing boiler that is prepared for later use as a hybrid heating system, for example in combination with a thermal solar system or an air-water heat pump. Gas is still prevalent in such heating systems, however KfW noted that renewable ready heating systems are rarely used in Effizienzhaus/Effizienzgebäude 40 standards and that, in any event, they must provide at least 50% of heat from renewable energy once retrofitted. Moreover, KfW informed us that there is a requirement to retrofit the renewable energy component within two years. This reduces the possibility of the system being used as pure gas heating system indefinitely, however, once retrofitted, up to 50% of heat may still come from gas.

KfW has confirmed that new buildings can be connected to district heating networks with fossil fuel input. For new buildings, oil-based heat generation in heating networks may supply a maximum of 10% of the network's annual amount of heat. While there is no equivalent restriction on gas, KfW notes that connection to a network with high gas content would require borrowers to invest heavily in other aspects of the building envelope to compensate for such heating and achieve the requisite energy use requirements. Connection to such networks can also be financed as part of renovations or even as a single measure. however KfW stated that in order to achieve higher Effizienzhaus/Effizienzgebäude standards, district heating networks would need low fossil fuel input. Nonetheless, a lock-in risk exists, particularly in the case where borrowers aim for less ambitious Effizienzhaus/Effizienzgebäude standards for renovations and single measures.

KfW expects only a minor share of proceeds in 2022 to be allocated to clean transportation projects. This project category is very broad, covering all clean transportation project types set out in the EU Taxonomy. The only eligibility criteria are the respective EU Taxonomy substantial contribution to climate change mitigation criteria. As well as several types of zero-emission transportation modes, this includes vehicles with emissions, therefore giving rise to a lock-in risk. For example, until 2026 plug-in hybrid passenger cars and other light duty vehicles not engaged in freight transport with emissions lower than 50gCO₂/km can qualify. Neither must interurban buses be zero-emission before 2026 to fall under the EU Taxonomy, while heavy duty vehicles can be low emission where being zero-emission is technologically or economically infeasible. With programs 268-9 aimed at corporations, KfW acknowledges that low-emission corporate fleets (i.e. hybrid passenger cars) will likely be financed.

Under the renewable energy project category, KfW can finance geothermal and bio-based energy production. Geothermal energy can be a significant source of emissions, with some plants generating higher GHG emissions than fossil fuel equivalents. Indeed, while the EU Taxonomy contains a 100g/kWh lifecycle emission threshold, KfW has confirmed that it has no equivalent threshold. This is a small risk, however, given that geothermal energy investments accounted for less than 1% of commitment volume under program 270 between 2018 and year to date 2021 (two projects). In respect of bio-based energy, KfW has confirmed that palm oil can in principle be used as a feedstock at financed projects. This carries a risk of associated deforestation. According to KfW's exclusion list, palm oil or wood producers must comply with RSPO or FSC, however producers can also comply if they are in the process of achieving compliance. A risk of uncertified palm oil use therefore remains – this is, however, a low risk given this is not a focus area for financing.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	KfW Green Bond Framework (January 2022)	
2	KfW Sustainability Report	
3	KfW Sector Guidelines	
4	KfW Exclusion List	
5	KfW Loan Programs: 270, 261, 262, 263, 264, 267, 268, 269	
6	Technical Criteria for KfW loan programs 267, 268, 269	



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.

