



GreenRock Energy AG Green Bond Second Opinion

January 21, 2020

GreenRock Energy AG (“GreenRock”) is a company focusing on the planning, construction, financing and operation of solar energy projects headquartered in Berlin, Germany. As per its corporate purpose, the issuer plans, builds and finances solar power plants in Germany and other selected European energy markets. By September 2020, the company had developed, constructed, acquired and/or financed 50 solar PV projects mainly in Germany, Italy and Austria.

The green bond framework exclusively focuses on financing of solar PV plants with an installed capacity of up to 750kW for rooftop systems and 5-10 MW for ground-mounted plants. The company informed us that no forests would be cleared for the power plants and that only brownfield sites would be eligible for ground mounted plants. The company confirmed that according to national regulation, land with high biodiversity value or conservation areas cannot be selected.

GreenRock is focusing on the generation of renewable energy but could significantly improve governance procedures. GreenRock does not have a sustainability policy nor any specific targets related to environment or climate change. In addition, the issuer has not implemented TCFD recommendations but is aware of the climate risks related to their activities. GreenRock is not screening for whether there is a need to conduct an Environmental Impact Assessments (EIA), e.g. due to location. GreenRock requires their solar modules suppliers to be a part of a recycling program at end of life and informed us that the company requires external environmental experts to conduct site visits ahead of project approval. While the company does not currently report on emissions, GreenRock informed us that they have plans to measure and report Scope 1, 2 and 3 emissions and to conduct and report lifecycle assessments.

Based on the overall assessment of the eligible green assets under this framework and governance and transparency considerations, GreenRock’s green finance framework receives a **CICERO Dark Green** shading and a governance score of **Fair**. The project categories represent a clear Dark Green solution, but the issuer could improve the framework by strengthening governance procedures. GreenRock could establish specific climate and environmental targets and policies as well as systematically screen to identify the need to carry out an EIA, screen suppliers for environmental and climate impacts and carry out systematic climate risk assessments.

SHADES OF GREEN

Based on our review, we rate the GreenRock’s green bond framework **CICERO Dark 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 GreenRock’s framework to be **Fair**.



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 December 2020. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

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

Expressing concerns with 'shades of green'

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

CICERO Shades of Green



Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.



Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.



Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.



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

Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available



New infrastructure for coal

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, 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 GreenRock's green bond framework and related policies

GreenRock Energy AG (“GreenRock”) is a company focusing on the planning, construction, financing and operation of solar energy projects headquartered in Berlin, Germany and established in 2016. The company currently employs a workforce of 10 and since March 2020 the company has also been providing services in the field of operational management and maintenance of solar photovoltaic (PV) facilities through a subsidiary company called GreenRock Service UG. GreenRock is a wholly owned subsidiary of GreenRock Capital GmbH, which is only active in holding these shares of the GreenRock group.

As per its corporate purpose, the issuer plans, builds and finances solar power plants in Germany and other selected European energy markets. Currently, the issuer is mostly active in providing rooftop systems of up to 750 kW, but also provides ground mounted plants of 5-10 MW per plant. By September 2020, the company had developed, constructed, acquired and/or financed 50 photovoltaic projects mainly in Germany, Italy and Austria. Through the company's Special Purpose Vehicles (SPVs) electricity is also offered directly to end customers. In addition, the company provides financing solutions for public investors.

Environmental Strategies and Policies

The group in its entirety operates in the field solar energy and strives to achieve 100% of its own energy consumption to be renewable sources. According to the issuer, the GreenRock plans, constructs, finances and operates solar PV plants working closely with local stakeholders. Additionally, GreenRock holds shares in power plants through its subsidiaries.

Currently the company does not measure or report its Scope 1, 2 and 3 emissions, does not have a dedicated sustainability policy and does not have specific emissions reduction targets. However, the company informed us that GreenRock currently plans to measure and report its Scope 1, 2 and 3 emissions including construction emissions of plants in the future as well as life cycle emissions from the solar plants. The company is aware of higher life cycle emissions from modules GreenRock imports from China and is actively engaging with various producers to minimize life cycle impact of modules.

GreenRock informed us that the company only buys modules from suppliers who are connected to a recycling system to ensure reuse of old modules (PV cycle).

According to the issuer, the company is aware of physical climate risks and is actively assessing potential impacts of risks such as increased risk of flooding or snow loads. The company also informed us that every site is assessed by external engineers to ensure that the plants withstand a more extreme weather (currently, e.g., by engineers from Fraunhofer Institute). The company does not report in accordance with the TCFD.

Use of proceeds

The issuer will invest the proceeds in financing and refinancing of solar energy projects. The Issuer plans to implement various photovoltaic projects, falling within the following three categories: solar power plants operating on a feed-in tariff basis, solar power plants operating on the basis of supply contracts and Landlord-to-tenant projects (e.g., rooftop solar power with 100-750kW peak in combination with storage technology and



electromobility services to commercial establishments through direct delivery to charging stations via a grid-balanced power purchase). At least 75% of investments using the funds raised from the financing instruments in the period to 31 October 2030 is to be made in the two core markets Germany and Italy. According to the issuer all of the green bond proceeds will go to financing of new projects.

Projects involving fossil fuel or nuclear power generation cannot be financed or refinanced through the green bond.

Selection

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

Projects are selected based on GreenRock's aim of increasing the share of renewable energy. A green bond steering committee has been appointed to guarantee a formal process by ensuring that the projects selected meet all eligibility criteria and are in line with green bond issuance guidelines. The committee exists of the General manager of GreenRock, the Head of the legal department at GreenRock and the Sales manager at GreenRock. While the members of the green bond committee have expertise in the solar industry according to the company, they do not have dedicated environmental and sustainability expertise. According to the issuer the committee will convene monthly and decide in consensus. If a project fails to meet all eligibility criteria, the steering committee is in charge of replacing it with a suitable alternative project. Members of the steering committee are tasked with ensuring that all criteria are met throughout the entire life cycle of the solar parks. Typically, projects for selection are either offered by towns/cities that have suitable areas, or they are identified as brownfield surfaces that are not used anymore.

The company informed us that GreenRock only works with subcontractors who adhere to European standards and that PV module production plants in China are externally certified. GreenRock informed us that it reviews the certifications. Projects for financing have already been selected and confirmed as compliant by solar park development experts (GreenRock's employees). European EIA-legislation does not automatically require an EIA for solar projects, but that there is a screening to decide on the appropriate environmental assessment, i.a. depending on location. However, the company informs that they carry out a risk assessment to identify any environmental, social and economic risks. These risk assessments are typically carried out by the management of the company. Projects will be screened for compliance with the EU directive on Waste Electrical and Electronic Equipment (WEE, 2012/19/EU).

Management of proceeds

CICERO Green finds the management of proceeds of GreenRock to be in accordance with the Green Bond Principles. The net proceeds from the green bond will be managed by the financing department on a separate account and will be disbursed individually to the respective projects according to the issuer.

The financing department of GreenRock and the green bond steering committee will monitor the allocation of proceeds. Until full allocation is complete, the status will be disclosed in the reports. Unallocated proceeds will be held in cash according to the issuer.

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.

GreenRock will report annually until the green bond financing has been fully repaid on allocation of proceeds and impacts. Additional reports may be published in cases of significant changes such as asset sales. The reporting will be made public as part of the financial statement on the GreenRock website. The person in charge of the green bond project at GreenRock is responsible for the monitoring, recording and reporting of environmentally relevant key data, as well as for the compiling of reports and the management of GreenRock is responsible for the internal reporting procedure.

The allocation reporting will include total amount of proceeds from the green bond, amount of allocated proceeds, portion of total project financing, portion of financing, and information on non-allocated proceeds, if any. The allocation of proceeds will be externally reviewed.

The impact reporting will be provided with quantitative impact indicators including the calculation methodology and will also illustrate any risks and conflicts, the areas affected and how these risks are addressed. Possible conflicts arising for solar parks are:

- Waste from previous properties
- Construction noise/pollution
- Biodiversity
- Environmental sustainability/animal welfare

The impact indicators include:

- Reduction or avoidance of GHG emissions
- Annual output of renewable energy
- Installed capacity of renewable energy projects



3 Assessment of GreenRock’s green bond framework and policies

The framework and procedures for GreenRock’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 GreenRock 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 GreenRock’s green bond framework, we rate the framework **CICERO Dark Green**.

Eligible projects under the GreenRock’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 | Financing for investment in existing and to-be-developed solar power plants. <ul style="list-style-type: none"> Projects must be located in Europe. Only products that are compliant with the EU directive on Waste Electrical and Electronic Equipment (WEE, 2012/19/EU) can be used for the construction of solar power plants. | Dark Green <ul style="list-style-type: none"> ✓ While renewable energy is generally low-carbon, local environmental impacts such as on biodiversity and landscape as well as lifecycle emissions from construction and operation can be of concern, as can new access roads and their unintended environmental impacts. The issuer informed us that new access roads cannot be financed under the framework. ✓ The company informed us that no forest would be cleared for the plants and that plants will be built on brownfield land and on roof surfaces but not on agricultural land. ✓ While GreenRock only purchases solar modules that are part of a recycling program at end of life, GreenRock currently has no dedicated plans for decommissioning and the restoration of land. ✓ The company provides direct power purchase agreements mainly to industrial plant operators, farmers and real estate companies but has confirmed that all plants are directly connected to the grid. |

Table 1. Eligible project categories



Background

In 2019, renewable electricity generation rose 6%, with wind and solar PV technologies together accounting for 64% of this increase. Although the share of renewables in global electricity generation reached almost 27% in 2019, renewable power as a whole still needs to expand significantly to meet the SDS share of almost half of generation by 2030. This requires the rate of annual capacity additions to accelerate¹. In 2017, solar PV provided about 2% of the world's electricity – only a tenth of that provided by hydropower. By 2030, solar is expected to have caught up with hydro – with both sources providing almost 15% each of the total electricity produced².

The EU has committed itself to a clean energy transition, which will contribute to fulfilling the goals of the Paris Agreement on climate change and provide clean energy to all. To deliver on this commitment, the EU has set binding targets, e.g. to increase the share of renewable energy to at least 32% of EU by 2030³. The EU Member States have drafted 10-year National Energy and Climate Plans (NECP), setting out how to reach its national targets.

Germany's long-term emission development strategy, as defined in its Climate Action Plan 2050, aims to become "extensively greenhouse gas-neutral by 2050" and to cut GHG emissions by at least 55% by 2030 compared to 1990 levels and 80-95% by 2050.⁴ At the same time, Germany is phasing out its nuclear power generation by 2022. Current emissions levels lie at 805 million tCO₂e, of which 246 million tCO₂e (30.5%) is in the energy industry.⁵ According to the Climate Action Plan 2050, the German Energiewende (energy transition) is supposed to expand renewable energies in Germany and reduce the energy sector's emissions by 61-62% by 2030 compared to 1990, which was recently updated to 65% by the renewable energy law ("EEG") and 100GW of solar PV capacity by 2030.⁶ According to the Federal Ministry for Economy Economic Affairs and Energy, more than 1.6 million PV systems in Germany were producing 47.5GW of power in 2019.⁷ The Renewable Energy Sources Act reforms in 2014 and 2017 overhauled the renewable energy funding structure towards more competition and greater cost efficiency, as large capacity renewable energy sources are now required to compete to feed-in to the grid through a tendering process.⁸

Solar photovoltaic cells can be energy-intensive to produce, so in addition to assessing the metrics for increasing renewable generation capacity and avoided greenhouse gas emissions, CICERO Green places importance on life-cycle assessments and supply chain in the provision of renewable energy.

In March 2020, a technical expert group (TEG) proposed an EU taxonomy for sustainable finance that included a number of principles including "do-no-significant-harm (DNSH)-criteria" and mitigation thresholds for various types of activities.⁹ In November 2020, EU published its draft delegated act to outline its proposed technical screening criteria for climate adaptation and mitigation objectives, respectively, which it was tasked to develop after the Taxonomy entered into law in July¹⁰. GreenRock's eligible activities relate to the taxonomy activity

¹ <https://www.iea.org/reports/renewable-power>

² <https://www.dnvgl.com/to2030/technology/solar-pv-powering-through-to-2030.html>

³ https://ec.europa.eu/energy/sites/ener/files/documents/necp_factsheet_pl_final.pdf

⁴ <https://www.bmu.de/en/topics/climate-energy/climate/national-climate-policy/greenhouse-gas-neutral-germany-2050/>

⁵ https://www.umweltbundesamt.de/sites/default/files/medien/384/bilder/dateien/en_indicator_klim-01_greenhouse-gas-emissions_2020-03-25.pdf

⁶ <https://www.ise.fraunhofer.de/content/dam/ise/de/documents/publications/studies/aktuelle-fakten-zur-photovoltaik-in-deutschland.pdf>

⁷ <https://www.bmwi.de/Redaktion/DE/Dossier/erneuerbare-energien.html>

⁸ <https://www.iea.org/reports/germany-2020>

⁹ Taxonomy: Final report of the Technical Expert Group on Sustainable Finance, March 2020.

https://ec.europa.eu/knowledge4policy/publication/sustainable-finance-teg-final-report-eu-taxonomy_en

¹⁰ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12302-Climate-change-mitigation-and-adaptation-taxonomy#ISC_WORKFLOW



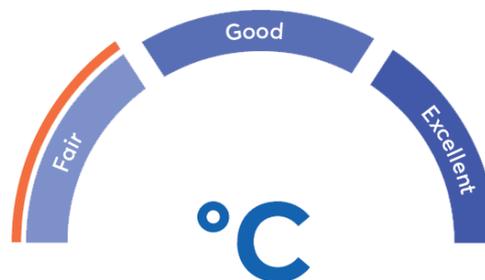
Electricity generation using solar photovoltaic technology in the draft published in November 2020¹¹. Production of electricity from solar PV is considered to contribute substantially to climate change mitigation without any further threshold screening. For Solar PV DNSH-criteria are related to adaptation, circular economy, and ecosystems.

Governance Assessment

Four aspects are studied when assessing the GreenRock'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.

GreenRock is focusing on the generation of electricity from solar PV and is by this contributing to the mitigation of climate change. However, GreenRock does not have any specific targets related to environment. The issuer has not implemented TCFD recommendations but is aware of the climate risk related to their activities. GreenRock currently has no sustainability policy and does not measure or report its emissions. The company is aware of higher life cycle emissions from modules and, according to GreenRock, is planning to measure and report emissions and conduct LCAs.

The company has established a green bond committee that convenes monthly and decides in consensus. While the members of the green bond committee have expertise in the solar industry according to the company, they do not have dedicated environmental and sustainability expertise. GreenRock imports from China and is actively engaging with various producers to minimize life cycle impact of modules. In addition, external experts are inspecting solar PV sites prior to selection.



The company will be reporting on relevant indicators and will obtain an external review of its allocation reporting.

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

Strengths

It is a clear strength that GreenRock's framework focuses exclusively on low-carbon solutions. Electricity generated from solar PV plants will increase the share of renewable energy in Germany, Austria and Italy as well as in GreenRock's other target markets within Europe and is an important contribution to their renewable energy targets.

According to the issuer, the company is mainly focused on renovation of existing roofs and installing solar modules on these rooftops. In addition, the company builds its PV plants on brownfield land that is not further in use.

The company also informed us that every site is assessed by external engineers (currently, e.g., by engineers from Fraunhofer Institute). A detailed external assessment of every site constitutes a strength.

¹¹ [EU Taxonomy: Annex to the Commission Delegated Regulation, supplementing Regulation \(EU\) 2020/852, November 2020. https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-da-2020-annex-1_en.pdf](https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-da-2020-annex-1_en.pdf)



Weaknesses

We find no material weaknesses in GreenRock's green bond framework.

Pitfalls

While renewable energy projects generally are considered to have a very positive climate mitigation impact, there are nevertheless emissions associated with the construction process. While GreenRock currently does not conduct or report life cycle assessments GreenRock is currently planning to do so in the future. Life cycle assessments will provide valuable information on the environmental and climate impacts of the projects and point to suppliers that can lead to a reduction in emissions.

The main negative environmental impacts associated with generation of renewable energy include impacts on biodiversity, interference with migration pathways and changes in habitat from construction and operation, and visual pollution of the local environment. This is partly mitigated by the fact that GreenRock focuses on brownfield sites as well as rooftop solar. However, CICERO Green encourages GreenRock to systematically screen to identify the need to carry out an Environmental Impact Assessments (EIA).

There is a risk that projects financed might be exposed to physical climate risks. CICERO Shades of Green encourages the issuer to systematically assess climate risks and to report in accordance with TCFD. In addition, GreenRock is encouraged to set emission reduction targets for its own operations.



Appendix 1: Referenced Documents List

| Document Number | Document Name | Description |
|-----------------|---|-------------|
| 1 | GreenRock's Green Bond framework, December 2020 | |



Appendix 2: About CICERO Shades of Green

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

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

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

