



Alternus Energy Group plc Green Bond Second Opinion

11 September 2020

Alternus Energy Group plc (Alternus Energy) is an independent power producer of green energy with a current focus in photovoltaic (PV) solar. Alternus Energy is a holding company with no stand-alone operations and no material assets other than its ownership interest in its subsidiaries. All of the company's operations are conducted through, and its income derived from, its various subsidiaries, which are organized and operated according to the laws of their jurisdiction of incorporation. Current portfolio consists of 23 operating PV solar parks in Germany, Italy, Netherlands and Romania, with a total installed capacity of 30.3 MW. Other countries may be included going forward.

Alternus Energy is currently a small company. As such it has targets for growth in MW terms, but no targets of own emissions nor environmental strategies beyond expanding renewable energy production. However, the issuer state that going forward and expanding more into project development and construction, they plan to put a formal sustainability policy framework in place. The company also intends to publish sustainability reports as part of this framework and in line with GRI standards. Alternus Energy will manage all of the above activities through a dedicated environment and sustainability position within senior management of the company planned to be appointed during 2021.

The management of proceeds is good and in accordance with the Green Bond Principle and reporting is comprehensive based on principles and data from third parties. Grid factors used to report CO₂ emissions avoided are taken from European Commission JRC Technical Reports. Alternus Energy use life cycle assessment emissions factor across its portfolio for the calculation of CO₂ avoidance.

Overall, we find the solar PV power production to be Dark green. However, the issuer still has some work to do when it comes to its own broader environmental impacts and reporting. For these reasons CICERO Shades of Green finds the governance procedures in Alternus Energy's framework to be **Fair**. Plans are afoot to strengthen these aspects. CICERO Shades of Green find the overall framework of Alternus Energy to be **Dark Green**.

SHADES OF GREEN

Based on our review, we rate the Alternus Energy'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 Alternus Energy'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 September 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 Alternus Energy's green bond framework and related policies

Alternus Energy Group plc (Alternus Energy) is an independent power producer of green energy, with a current focus in photovoltaic (PV) solar. Alternus Energy is a holding company with no stand-alone operations and no material assets other than its ownership interest in its subsidiaries. All of the company's operations are conducted through, and its income derived from, its various subsidiaries, which are organized and operated according to the laws of their jurisdiction of incorporation in various countries around the world, and consolidated by the company. The company currently has 15 employees based globally (U.S., Italy, Ireland, Romania and Germany) with its corporate headquarters in Dublin, Ireland.

Alternus Energy's subsidiaries are acquiring and operating PV solar parks across multiple jurisdictions. Current portfolio consists of 23 operating PV solar parks in Germany, Italy, Netherlands and Romania, with a total installed capacity of 30.3 MW. The operational parks connect directly to national power grids on long-term feed-in-tariffs and green certificate schemes, in addition to power purchase price agreements. Additional parks may be acquired in other European countries in the future. Working with specialist development partners, Alternus Energy has cultivated specialist developer partnerships in-country that has delivered a current pipeline of approximately 1.2GW, to be completed within the life-time of the Green Bond, in the current operating countries of Germany, Italy, the Netherlands and Romania plus additional projects in Poland, France, Spain, Portugal, Ireland and the UK.

Alternus Energy is in the process of listing on the Merkur Market on the Oslo Stock Exchange for Q4 2020, with an expectation to list on the Oslo Børs Main Market during 2021.

Environmental Strategies and Policies

Alternus Energy monitors CO₂ equivalent emissions avoidance of their whole portfolio of operational solar PV parks using the Meteorcontrol Performace Monitoring System¹. This system reports that the Alternus Energy's currently owned portfolio is contributing to reducing greenhouse gas emissions in CO₂ equivalents by approximately 30,000 metric tonnes on an annual basis. There is no reporting on own (scope 1 or 2) emissions nor any future targets for these emissions. We note, however, that the company's European headquarters in Dublin, which houses the majority of the 15 employees, is 100% powered from renewable energy fully certified by the electricity supplier. Company cars are fully electric and any future company cars will follow suit, with the ability to charge on site at the Dublin office location.

Alternus Energy is committed to growing its portfolio of clean energy solar PV parks across Europe and internationally with a target to own and operate at least 2GW of solar parks by 2025. At this level, the company will help avoid over 2 million metric tonnes of CO₂ equivalent annual emissions (using current average CO₂ equivalent emissions avoidance achieved with the existing park portfolio). To date the growth strategy has primarily involved the acquisition of already operational solar parks in countries where the combination of economic, environmental and political policies are optimized and supportive for long-term solar growth. Going forward, portfolio growth will reflect 95% of newly constructed projects that will be net addition to global CO₂ emissions avoidance capabilities.

¹ <https://www.meteocontrol.com/en/>



Given the current small size of the company there is at present no formal sustainability framework in place.

However, Alternus Energy consistently strives to manage and operate its solar PV parks in an environmentally friendly and sustainable way by partnering with Tier 1 companies such as BayWa r.e.² to carry out its operations and maintenance. BayWa r.e. use local operatives where possible and also carry out sustainability reporting in which they systemically record energy consumption and CO₂ emissions in accordance with Global Reporting Initiative (GRI) standards. Overall reporting responsibilities remain with Alternus Energy.

Going forward and expanding more into project development and construction with its specialist partners, Alternus Energy plans to put a formal sustainability policy framework in place. Under this framework policy the company will ensure that all aspects of project development are carried out in a sustainable manner while also mitigating any local environmental and social impact identified under a multi-faceted life cycle assessment which will run alongside the company's project acquisition approval process. As part of this sustainability policy framework, Alternus Energy will further strengthen its strive for responsible procurement when making decisions on partners, contractors and subcontractors in project development. Additionally, the company will implement an environmental and social management system (ESMS) guided by IFC standards that will reside at the core of group activities and trickle down to project level. The company also intends to publish sustainability reports as part of this framework and in line with GRI standards. Alternus Energy will manage all of the above activities through a dedicated environment and sustainability position within senior management of the company planned to be appointed during 2021.

Use of proceeds

An amount equal to the net proceeds from the issuance of green financing instruments raised in accordance with this framework will be allocated to the financing of new acquisitions (75%) or refinancing (25%) of a pool of "Eligible projects" in the Renewable energy category, see table 1 below. This includes completed and operating ground mounted and rooftop solar PV power plant assets.

Eligible projects exclude any projects related to fossil fuel-based energy production, transmission, and distribution.

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.

Eligible projects to be partly financed with proceeds from Alternus Energy's green bonds are evaluated, selected and prioritized by a dedicated Project Acquisition Approval Committee ("PAAC") consisting of members from the business development, strategic planning, operations and senior management teams. As part of the company's growth strategy there will in the future be an environment and sustainability position within senior management of the company that will be a core member of PAAC.

The PAAC team follows a pre-determined and systematic assessment process, involving expert external advisors for additional legal and technical due diligence as well as environmental studies for new projects. The objective is

² <https://www.baywa-re.com/en/about-baywa-re/>



to affirm project eligibility and compliance with Alternus Energy's Green Bond Framework, in conformance with the company's financial and commercial ambitions.

The PAAC team hold meetings on a regular basis to determine which projects to progress through the acquisition process and ultimately the acquisition decision which strives for a consensus decision among its members. The final purchase decision is made by the CEO and CFO based on pre-approval from the PAAC. Larger projects may also require Alternus Energy Board approval.

Management of proceeds

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

The net proceeds from Alternus Energy's Green bonds will be deposited in the general account and an amount equal to the net proceeds will be earmarked for allocation to the eligible projects, in accordance with Alternus Energy's Green Bond Framework.

Alternus Energy intends to allocate the full amount of the net proceeds within the first 6 months following the issuance of the green bonds on a portfolio basis. Pending the allocation or reallocation of the net proceeds, Alternus Energy will place any surplus unallocated proceeds in an ordinary bank account or short-term money market funds until deployed or allocated to an eligible project. Alternus energy will report on any unallocated proceeds should that arise in its regular public market reports.

All relevant information regarding the issuance of Green Bonds and projects (re)financed will be monitored and kept in the Company's accounting systems.

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.

Alternus Energy publishes quarterly financial reports to meet its public market filing obligations. In addition, Alternus Energy will also report at least annually to meet the requirements of ICMA's Green Bond Principles (2018). The first report will be made for the quarter ending December 31, 2020. These reports will include annual reporting on each eligible project financed or re-financed by the net proceeds of Alternus Energy's green bond issuance(s) and any tap issues. The annual reports will be subject to independent audit by a leading external professional audit firm – such as Grant Thornton.

The allocation reporting will cover:

- Descriptions of the solar power parks and/or special purpose vehicles financed or refinanced by the net proceeds from the issued green bonds, including location and legal entity name.
- Monetary amount allocated to each special purpose vehicle, housing the solar parks, split by green bond and equity as appropriate.
- Monetary amount of any unallocated net proceeds from the issued green bonds.
- Consolidated quarterly balance sheet and income statement of the projects related to the green bonds.

The impact reporting will include:



- Installed capacity of solar power production (in MW) for each solar plant or special purpose vehicle to which it belongs.
- Consolidated annual solar power generation (in MWh) for the projects related to the green bonds.
- Consolidated annual greenhouse gas emissions avoided (metric tons CO₂ equivalents) for the projects related to the green bonds based on grid factors from a European Commission JRC report.³

Where confidentiality agreements, competitive considerations, or a high number of underlying projects limit the amount of detail that can be made available, Alternus Energy will present information in generic terms or on an aggregated portfolio basis (e.g. at the special purpose vehicle level).

³ European Commission JRC Technical Reports: Covenant of Mayors for Climate and Energy: Default emission factors for local emission inventories - Version 2017.



3 Assessment of Alternus Energy’s green bond framework and policies

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

Eligible projects under the Alternus Energy’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 	<ul style="list-style-type: none"> Completed and operating solar PV power plant assets. 	Dark Green <ul style="list-style-type: none"> ✓ Environmental requirements to sub-contractors should be considered. ✓ While solar power is generally low-carbon, local environmental impacts such as on biodiversity and landscape can be of concern for these projects.

Table 1. Eligible project categories

Background

In 2019, global renewable electricity generation grew 7% and reached a quarter of global power output, due to the continued growth of solar PV and wind technologies accounting for 65% of this increase. Despite these positive trends (especially with PV), additional efforts are needed in renewable power generation to meet the targets set out in the IEA’s SDS. According to the IEA, the share of renewables in global electricity generation must reach 47% by 2030, up from 25% in 2017⁴.

⁴ <https://www.iea.org/topics/tracking-clean-energy-progress>



EU Taxonomy

In 2020, the EU Taxonomy was released in a multilateral effort to standardise thresholds and metrics to aid the green transition. The Taxonomy provides signposting for investors and bond issuers to aid in their decision-making and project selection processes. The relevant thresholds in the EU Taxonomy for Alternus Energy's eligible project category are limited to the Renewable energy category. This states that "any electricity generation technology can be included in the taxonomy if it can be demonstrated, using an ISO 14067 or a GHG Protocol Product Lifecycle Standard-compliant Product Carbon Footprint (PCF) assessment, that the life-cycle impacts for producing 1 kWh of electricity are below the declining threshold." This declining threshold is determined as: "facilities operating at life-cycle emissions lower than 100 gCO₂e/kWh, declining to 0 gCO₂e/kWh by 2050, are eligible." Currently, solar PV is derogated from GHG or PCF life-cycle assessments, subject to regular review in accordance with the declining threshold.

The EU Taxonomy also considers Do-No-Significant-Harm criteria within six categories (which may or may not always all be relevant): climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy, waste prevention and recycling; pollution prevention and control; and protection of healthy ecosystems. Specifically for solar PV, considerations include ensuring climate resilience and no additional adverse impacts on the climate; ensuring PV panels are designed and manufactured for durability and easy maintenance and reparability; managing risks related to water quality and consumption; ensuring the completion of an Environmental Impact Assessment in accordance with appropriate standards especially if located on biodiversity-sensitive areas, as well as implementing a robust biodiversity monitoring and evaluation programme.

Alternus Energy's projects will likely align with the EU Taxonomy. However, they are only planning to incorporate these thresholds on a "best-efforts basis" and the existing requirement is simply that eligible projects "make a positive contribution to the objective of climate change mitigation." It will be important that Alternus Energy, in addition to incorporating the thresholds from the EU taxonomy, also ensures that all 'Do-No-Significant-Harm' recommendations from the EU Taxonomy for solar PV are followed.

Governance Assessment

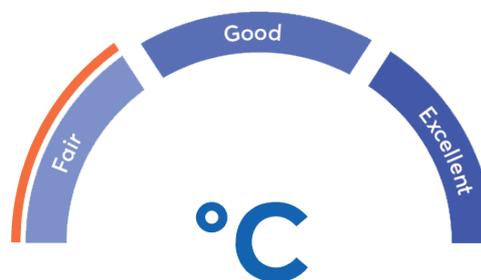
Four aspects are studied when assessing the Alternus Energy's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects 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.

Alternus Energy is currently a small company mainly dealing with solar parks in the secondhand market. As such it has targets for growth in MW terms, but less attention on quantified targets for own (scope 1 and 2) emissions or environmental strategies beyond expanding renewable energy production. However, the issuer state that going forward and expanding more into project development and construction, they plan to put a formal sustainability policy framework in place. This will cover mitigating any local environmental and social impact identified under a multi-faceted life cycle assessment. As part of this sustainability policy framework, Alternus Energy will further strengthen its strive for responsible procurement. The company also intends to publish sustainability reports as part of this framework and in line with GRI standards. Alternus Energy will manage all of the above activities through a dedicated environment and sustainability position within senior management of the company planned to be appointed during 2021. This will also strengthen the selections process which currently a lack deep environmental competence and screening of potential controversial projects. The issuer will only 'strive' for allowing veto power to the environmentally competent person in the coming selection committee.



The management of proceeds is good and in accordance with the Green Bond Principle, and the planned reporting is comprehensive, and based on principles and third-party input. Grid factors used to report CO₂ emissions avoided are taken from European Commission JRC Technical Reports: Covenant of Mayors for Climate and Energy: Default emission factors for local emission inventories - Version 2017.

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



Strengths

The eligible project category is clearly defined and most likely will align with the EU Taxonomy as long as the do-no-harm clause is observed. This will promote transparency and consistency in the project selection process. Additionally, the metrics planned reported on are along key metrics identified by the ICMA Harmonized Framework for Impact Reporting, which provides a clear methodology for reporting and helps in collecting consistent data. Alternus Energy use life cycle assessment emissions factor across its portfolio for the calculation of CO₂ avoidance. This is clearly a strength of the reporting regime of the framework.

Weaknesses

CICERO Green finds that Alternus Energy's framework is currently somewhat weak on governance issues, i.e. strategies, policies and targets for own environmental impacts. Also, environmental assessments of eligible projects are carried out by third parties, with limited environmental competence in-house in Alternus Energy. Both of these issues will be rectified in the next year or so, according to the issuer. We find no other material weaknesses in the framework.

Pitfalls

Due to the complexity of how socio-economic activities impact the climate, a specific project is likely to have interactions with the broader community beyond the project borders. These interactions may or may not be climate-friendly, and thus need to be considered with regards to the net impact of climate-related investments.

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 terms of calculations of environmental impacts, it is recommended that lifecycle approach be used to calculate the environmental and climate impacts of the project and also that calculations be performed both ex-ante and ex-post project completion. A lifecycle approach includes the calculation of impacts from production of solar power stations and components through to the recycling and/or disposal phase and provides a broader view of the impacts than pure consumer use-based impacts. Performing and comparing estimated theoretical (ex-ante) and actual calculations of energy use (ex-post) improves transparency, as well as provides valuable insight into future project development about realistic emissions reductions.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Alternus Energy_Green Bond Framework_04.09.2020_JD	Aleternus Energy's Green Bond Framework dated September 2020
2	Annual-Report-2019	Annual report with Disclosure Statement Pursuant to the Pink Basic Disclosure Guidelines. (No sustainability reporting).
3	Code-of-Ethics-Senior-Accounting	Code of Ethics document for executive officer and senior financial officers.
4	Code-of-Business-Conduct-Ethics-All-Employees	Code of Conduct document without environmental concerns.
5	Appendix 3	A document explaining calculations of CO ₂ avoidance through solar power production and showing the CO ₂ emissions avoided through the current portfolio.



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).

