



# Sunnova Energy International Inc. Green Finance Second Opinion

14. July 2021

**Sunnova Energy International Inc. (“Sunnova”)** is a residential solar and energy storage services provider, headquartered in Houston, Texas, United States, and listed on the New York Stock Exchange. Founded in 2012, it serves over 116,000 customers in more than 25 United States and territories. Sunnova provides a wide range of solar energy and energy storage services, including the provision of solar panels, solar panels plus battery storage, add-on battery for customers with existing solar, and solar panels plus roof replacement, among other products and services it plans to release in the future. Sunnova’s green finance framework also covers its subsidiaries.

**Sunnova’s green finance framework relates solely to projects within the category of Renewable Energy and Energy Services.** More specifically, proceeds from any financings under the green finance framework may be used for the capital investment, research, development, acquisition, manufacturing, distribution, maintenance and operation of solar energy and storage systems and enabling technologies for solar energy optimization and storage. Generating electricity from solar PV will play a large role in a low-carbon transition, and electricity storage systems can help facilitate increased use of renewable energy. By currently focusing exclusively on residential solar, Sunnova negates the local environmental harm large-scale renewable energy assets may cause.

**Sunnova can improve aspects of its governance, particularly in respect of short and medium-term climate targets and supply chain considerations.** Sunnova has a long-term target of carbon neutrality by 2050 - which it is confident of achieving well before this date - and is committed to using natural resources and energy more efficiently and increasing its use of renewable energy. However, though it informs us it is committed to including these in its next ESG report for the year 2021, Sunnova currently has no short and medium-term targets in respect of these commitments or greenhouse gas (GHG) emissions reductions. As a provider of solar and energy storage systems and services, Scope 3 GHG emissions will likely account for a majority of Sunnova’s emissions. Though Sunnova informs us it is committed to doing so in its next ESG report for the year 2021, it does not currently measure or report these emissions. Sunnova is aware of the climate risks its operations are exposed to, and informs us it is committed to doing so in its next ESG report for the year 2021, but does not currently report in line with the TCFD framework.

Based on the overall assessment of the eligible assets under this framework, and governance and transparency considerations, Sunnova’s green finance framework receives a **CICERO Dark Green** shading and a governance score of **Good**. Sunnova could improve the framework by strengthening certain governance aspects, through: setting short and medium-term targets, measuring and reporting Scope 3 GHG emissions, strengthening procurement processes through the use of life-cycle assessments and considering supplier emissions, and reporting in line with the TCFD framework. We are encouraged by Sunnova’s intention to improve all of these aspects in the near future.

## SHADES OF GREEN

Based on our review, we rate Sunnova’s green finance framework **CICERO Dark Green**.

Included in the overall shading is an assessment of the governance structure of the green finance framework. CICERO Shades of Green finds the governance procedures in Sunnova’s framework to be **Good**.



## GREEN BOND AND GREEN LOAN 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 June 2021. This second opinion remains relevant to all green financing transactions 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.

### 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

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 financing 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 finance 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 Sunnova's green finance framework and related policies

Sunnova Energy International Inc. (“Sunnova”) is a residential solar and energy storage services provider, headquartered in Houston, Texas, United States, and listed on the New York Stock Exchange. Founded in 2012, as of 31 March 2021 it serves over 116,000 customers in more than 25 United States and territories. Sunnova currently operates exclusively in the United States and its territories.

Sunnova provides a wide range of solar energy and energy storage services, including the provision of solar panels, solar panels plus battery storage, add-on battery for customers with existing solar, and solar panels plus roof replacement. Sunnova furthermore offers up to a 25-year protection plan for its services, depending on the service. Depending on the product provided to the customer, Sunnova offers its customers the option to own or lease the installed solar or energy storage system, or to enter into a power purchase agreement for energy generated by and used from the system. Through its range of products and services, Sunnova aims to turn its customers' homes into nano-grids which, in turn, can be scaled and grouped into microgrids. Sunnova currently operates solely in the residential market.

Sunnova operates a differentiated residential solar dealer model, whereby dealers in its network originate, design and install its customers' solar energy and energy storage systems. In 2020, Sunnova had a network of 435 dealers and sub-dealers. Sunnova does not produce solar panel or batteries, which are instead purchased from its network of approved vendors.

Sunnova's renewable energy systems comprise more than 860 MW of generation capacity and it calculates that, as of 31 December 2020, its systems have generated 2.4 billion kWh of energy, avoiding 1.7 million metric tons of CO<sub>2e</sub> emissions.<sup>1</sup> Sunnova informs us the average size of its installations is between 7.5 and 8 kWh.

### Environmental Strategies and Policies

Sunnova has in place a publicly available Environmental Policy. This contains Sunnova's policies in respect of climate change and emissions reductions, electronic waste, waste reduction, green buildings, dealers, vendors, and conflict minerals.

Sunnova informs us it has a target of carbon neutrality before 2050 and intends to have specific targets, including in the short and medium term, in its next ESG report for the year 2021. Sunnova states it is working to improve its system of carbon accounting to allow for this. To mitigate the effect of its operations on climate change, Sunnova states it is committed to:

- Measure, monitor and report its direct emissions each year through a Scope 1 and 2 Greenhouse Gas (GHG) inventory. In its ESG Report for the year 2020, Sunnova reported Scope 1 emissions of 845 tons CO<sub>2e</sub> and Scope 2 emissions of 10 tons CO<sub>2e</sub>. The main source of Sunnova's Scope 1 and Scope 2 emissions are from purchased fuel for its fleet vehicles and purchased electricity used in its corporate offices.

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<sup>1</sup> Sunnova measures avoided emissions using the EPA's GHG Equivalencies Calculator: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>



- Using natural resources and energy more efficiently throughout its operations. Sunnova is, for example, committed to adding electric vehicles to its service fleet, expected to be available by 2022, though it does not currently have a percentage target for such vehicles.
- Purchasing and sourcing renewable energy where possible. In its ESG Report for the year 2020, Sunnova notes that none of the energy it currently consumes comes from renewable sources, though it informs us it is engaged in active conversations with the owner of its leased corporate headquarters in Houston regarding the installation of a solar system on its roof among other energy efficient initiatives.

Regarding electronic waste, Sunnova aims to sustainably dispose of modules, batteries, inverters, and other electronic equipment used in installations through partnerships with third-party recycling and refurbishment vendors. Sunnova notes that the vast majority of products it has installed have not reached the end of their useful life, however it aims to develop end-of-life systems and procedures to track, report, and manage the flow of electronics under its care at the end of their useful life.

Sunnova has a Green Building Policy. At its headquarters in Houston, for example, it uses motion sensors and energy efficient technologies to reduce its impact. For future locations, it aims to prioritize buildings with environmental accreditations, zoning for onsite solar and battery storage, and stormwater mitigation elements.

Sunnova has identified climate risks and opportunities as being highly material to its business, and stresses that its energy storage products are themselves mitigants to climate risk, though it does not currently report in line with the TCFD framework or utilize climate scenarios. Sunnova states it is considering TCFD disclosures as part of its climate strategy and will begin working on its ability to disclose its climate risks and opportunities in line with the TCFD framework as early as this year.

Sunnova acknowledges that its supply chain contributes to GHG emissions. While it does not currently measure Scope 3 emissions, Sunnova confirms it will undertake an assessment to measure its Scope 3 emissions in the future. Sunnova is currently building an emissions inventory for its supply chain and aims to report on this in its ESG Report for the year 2021. Once this is complete, Sunnova intends to incorporate these calculations in the climate targets it intends to set in the course of 2021.

Sunnova's Vendor Code of Conduct also details its expectations of vendors in respect of environmental issues. Per the Vendor Code of Conduct, Sunnova expects its vendors to carry out operations with care for the environment and comply with all applicable environmental laws and regulations. Moreover, Sunnova expects its vendors to consider their potential environmental impacts, along with opportunities for conservation of natural resources, recycling, source reduction and pollution control. Commitment to the Vendor Code of Conduct is a requirement for inclusion in Sunnova's approved vendor list for 2022. In the hope of reducing its supply chain impacts, Sunnova informs us it is in the process of updating its Request for Proposals (RFP) for vendors to include environmental and emission related aspects. Sunnova informs us such considerations will factor into its selection of vendors. Moreover, Sunnova informs us it will monitor, either itself or through the engagement of a third party, its vendors for emissions and environmental improvements.

Sunnova's ESG Report is publicly available and Sunnova states that it is aligned with the Sustainability Accounting Standards Board (SASB) disclosure guidelines and includes progress against the UN Sustainable Development Goals. In respect of SASB disclosure, although it does not produce solar panel or batteries itself, Sunnova nevertheless discloses data where the standards are aligned with its operations. Sunnova informs us it has established oversight of its ESG strategy at the board level and through an internal ESG committee.



### Use of proceeds

Sunnova's green finance framework states that green finance proceeds will be used for renewable energy and energy services projects. To be eligible, expenditures on projects must relate to one or more of the following: capital investment, research, development, acquisition, manufacturing, distribution, maintenance and operation of solar energy and storage systems and enabling technologies for solar energy storage and optimization. Sunnova cannot provide assurances as to the proportion of proceeds to be allocated to each aforementioned expenditure, though it currently expects the majority of green financing to be applied to retrofit solar and/or energy storage systems projects, and services related to solar systems and/or energy storage systems.

Investments and expenditures in eligible projects can be made by Sunnova or its subsidiaries. Sunnova informs us its subsidiaries are subject to its environmental and internal control policies and any existing or newly formed entities would therefore receive and use any proceeds of a green financing only in accordance with such policies.

Proceeds can be used to finance or re-finance new or existing projects. For existing projects, this only includes projects which have commenced operations or are placed-in-service within 3 years prior to the applicable green financing.

Sunnova may allocate the proceeds of a green financing to a single eligible green project, in whole or in part, or any combination of eligible green projects. Sunnova states it will not knowingly allocate proceeds from one green financing to investments which have received proceeds from another green financing. Sunnova informs us that it expects a majority of net proceeds to be used to finance project development costs or refinance project financing sources such as working capital or asset warehousing credit facilities, which Sunnova uses to temporarily finance new solar and storage projects prior to sourcing long-term financing.

### 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.

Sunnova has assembled a Green Finance Committee to evaluate and select eligible projects to receive green finance proceeds. The Green Finance Committee is comprised of one representative from each of the following disciplines, with the ESG Steering Committee having two representatives:

- Finance
- Treasury
- Operations
- Legal
- Internal Audit
- ESG Steering Committee

The Green Finance Committee will meet on a regular basis to review the eligible projects, generally during Sunnova's re-forecast cycles (which currently occur on a quarterly basis). The Green Finance Committee will evaluate and select projects that, according to Sunnova, meet the eligibility criteria and have the most impact from an ESG perspective, utilizing financial and risk-based metrics and reviewing the impact the projects will have on various ESG metrics to undertake a qualitative assessment. Risk-based metrics include Sunnova's underwriting criteria - its approval criteria of its customers - while ESG metrics include, among others, Scope 1 and 2 emissions and energy production. The Green Finance Committee will also collaborate with internal experts and various stakeholders as needed. The Green Finance Committee will arrive at an allocation recommendation using a



modified super majority voting procedure, such that at least five of seven members – including at least one member of the ESG Steering Committee – agree.

The Green Finance Committee will present the allocation recommendations to the Executive Leadership Team (“ELT”), made up of the CEO and 9 EVPs (CFO, Co-COOs, GC, HR, Marketing, CIO, Government Affairs and Chief of Staff), for approval. Once approved by the ELT, the funds will be allocated in accordance with the recommendation.

Sunnova informs us its independent auditors will verify the selection process and publish a ‘Use of Proceeds Attestation Report of Independent Accountants’.

### Management of proceeds

CICERO Green finds the management of proceeds of Sunnova to be in accordance with the Green Bond and Green Loan Principles.

Using existing internal systems, Sunnova will monitor and account for the available funds for eligible green projects to ensure the allocation of such amounts to eligible green projects. Sunnova intends to allocate the proceeds from any green financing within 36 months of the respective issuance date. Pending the allocation of any amounts to any eligible green projects, Sunnova will temporarily manage funds according to its normal liquidity practices, consistent with its investment policy and capital allocation framework. According to Sunnova, unallocated proceeds may be held in cash or cash-equivalent accounts, or temporarily used to reduce debt balances via the prevention or reduction of borrowings on its warehousing credit facilities. Sunnova informs us that, for at least the next three years, its warehousing credit facilities will fund projects that align with its green finance framework, as well as expenditures that enable the development of such projects, and will not be associated with fossil fuel use. Furthermore, if projects become ineligible or are refinanced with other green financings, such as securitizations, Sunnova informs us it will reallocate the proceeds in line with current eligible green projects.

### 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.

Sunnova will report the following on its website: the amount of available funds for eligible green projects allocated to each eligible green project by project type (e.g. retrofit solar, new home solar, grid services etc.); and any amounts pending allocation. Moreover, where feasible, Sunnova will also include: case studies with additional information on highlighted projects; and reporting focusing on sustainable impacts of its eligible green projects such as:

- number of customers with installed systems, if applicable;
- MW of solar capacity installed;
- MW and MWh of energy storage capacity installed; and
- kWh generated by its systems and resulting metrics tons of CO<sub>2</sub>e avoided.<sup>2</sup>

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<sup>2</sup> Sunnova will use the same methodology as for its current avoided emissions calculations, namely by using the EPA’s GHG Equivalencies Calculator: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>



Sunnova expects to link projects to individual financings and will report the share of financing of projects that comes from green financing.

Sunnova will provide such information until all available funds for eligible green projects are allocated (and in the event of material updates thereafter) and subject to confidentiality considerations. Sunnova informs us it will report annually, beginning at the time of the publication of its 10-K for the fiscal year ended 31 December 2021.<sup>3</sup>

The Green Finance Committee is responsible for impact reporting and such reporting will be verified by Sunnova's independent auditors in a 'Use of Proceeds Attestation Report of Independent Accountants'.

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<sup>3</sup> A 10-K is an annual report required to be filed by certain companies by the US Securities and Exchange Commission.





### 3 Assessment of Sunnova’s green finance framework and policies

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

#### Eligible projects under Sunnova’s green finance 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 financing aims 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 and Energy Services	<p>Expenditures related to the capital investment, research, development, acquisition, manufacturing, distribution, maintenance and operation of solar energy and storage systems and enabling technologies for solar energy storage and optimization.</p> <p>Examples of current core offerings:</p> <ul style="list-style-type: none"> <li>• Retrofit solar and/or energy storage systems</li> <li>• New home solar systems and/or energy storage systems</li> <li>• Services related to solar systems and/or energy storage systems</li> </ul> <p>Examples of growth offerings:</p> <ul style="list-style-type: none"> <li>• Grid services</li> <li>• Microgrids</li> <li>• Community solar</li> <li>• Electrical panels</li> <li>• Load controllers</li> <li>• Energy management devices and services</li> </ul>	<p><b>Dark Green</b></p> <ul style="list-style-type: none"> <li>✓ Renewable energy, including solar power, is key to a low-carbon transition.</li> <li>✓ Sunnova has confirmed it currently operates solely in the residential market, therefore avoiding potential local environmental harm (biodiversity, landscape etc.) large-scale renewable energy assets may cause.</li> <li>✓ Energy storage solutions can help mitigate the volatility of solar systems, including against climate risks e.g. extreme changes in weather.</li> </ul>





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- Electric vehicle charging
  - Development of Sunnova's network of aggregated nano-grids
- ✓ Battery storage requires high volumes of environmentally sensitive materials. The supply chains for these materials need to be appropriately managed, to avoid creating new adverse social and environmental impacts. Sunnova has confirmed it is evaluating issues surrounding the sourcing of raw materials, starting with solar modules, as stated in its Environmental Policy.
  - ✓ Sunnova informs us that 'grid services' include demand management, capacity, demand response, and frequency response. This would focus on community grids, rather than grids of individual residencies.
  - ✓ Sunnova informs us that 'energy management devices' include the addition of technologies to control how, when and how much energy is used to manage the homes on and off grid to try and optimize the energy produced on-site.
  - ✓ Sunnova informs us that 'maintenance' projects could, in theory, include financing fuel expenses and fossil fuel machinery/vehicles, but that this would feed into its selection process and the Green Finance Committee would likely not approve this.
  - ✓ According to Sunnova, the purpose of acquisitions financed by proceeds from green financing must be the enhancement and optimization of its solar energy offerings. This may include the acquisition of companies, or technologies and platforms which



could, in theory, have application beyond solar energy. In both cases, according to Sunnova, such acquisitions could not be made to deviate it from renewable energy, with a focus on solar energy. Any corporate acquisition may include the acquisition of assets which may not be green, for example a company's building(s) or vehicles.

Table 1. Eligible project categories

## Background

The substantial need for more renewable energy production, including solar installations, is undeniable. The IEA estimates that, in 2020, renewable energy generation grew by nearly 5%, reaching almost 30% of global electricity supply.<sup>4</sup> The IEA estimated that solar energy was the fastest growing of the renewable sources, with solar capacity growing by around 33% in 2020. Despite these positive trends, further increases in renewable generation are necessary to meet the IEA's Sustainable Development Scenario (SDS) targets: the SDS requires the share of renewables in global electricity supply to reach 50% by 2030 to meet climate and sustainable energy goals.<sup>5</sup> In respect of solar, the SDS requires solar output to increase to 3268 TWh in 2030, up from 720 TWh in 2019.<sup>6</sup>

The IEA sees the growth of energy storage capacity as another necessary development to meet climate and sustainable energy goals. More specifically, the SDS requires global energy storage to increase to 10,000 GWh by 2040, almost 50 times the current capacity.<sup>7</sup> To this end, the IEA notes the positive role behind-the-meter and residential batteries can play.<sup>8</sup>

The United States lags behind other major economies in its renewable energy generation. The EIA calculated that, in April 2021, only 12% of the United States' primary energy consumption came from renewable sources. Of this, only 11% came from solar.<sup>9</sup> By comparison, in 2020, renewable energy accounted for 19.7% of the EU's energy mix.<sup>10</sup>

## Governance Assessment

Four aspects are studied when assessing Sunnova's governance procedures: 1) the policies and goals of relevance to the green finance 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.

<sup>4</sup> <https://www.iea.org/reports/global-energy-review-2020/renewables>

<sup>5</sup> <https://www.iea.org/fuels-and-technologies/renewables>

<sup>6</sup> <https://www.iea.org/data-and-statistics/charts/solar-pv-power-in-the-sustainable-scenario-2000-2030>

<sup>7</sup> <https://www.iea.org/news/a-rapid-rise-in-battery-innovation-is-playing-a-key-role-in-clean-energy-transitions>

<sup>8</sup> <https://www.iea.org/reports/energy-storage>

<sup>9</sup> <https://www.eia.gov/energyexplained/us-energy-facts/>

<sup>10</sup> [https://ec.europa.eu/info/news/share-renewable-energy-eu-2020-dec-18\\_en](https://ec.europa.eu/info/news/share-renewable-energy-eu-2020-dec-18_en)

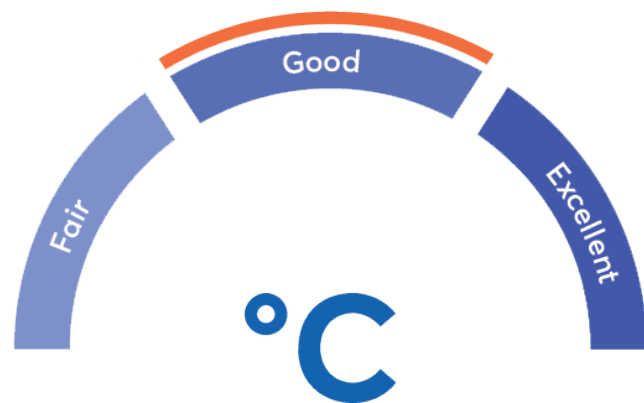


Sunnova operates exclusively in the generation and storage of solar energy and therefore contributes to the mitigation of climate change. It has a long-term target of carbon neutrality by 2050 and its annual ESG report includes measurements of Scope 1 and 2 emissions and avoided emissions from its products. Nonetheless, there are currently some shortcomings in Sunnova's environmental policies and strategies. Sunnova has a target of climate neutrality by 2050 but could increase its ambition through concrete short and medium-term targets. We encourage such targets to include Scope 3 emissions, which Sunnova does not currently measure. Sunnova's Environmental Policy is broad and focuses on pertinent areas, however it is vague in places - its Vendor Code of Conduct, for example, is based on Sunnova's 'expectations' of vendors. Sunnova does not currently implement TCFD recommendations. We are encouraged by Sunnova's commitment to further improve its environmental strategies and policies in the near future, for example, it is developing its Request for Proposals (RFP) for vendors to include environmental and emission related aspects.

Sunnova's selection process is encouraging, whereby a range of ESG metrics are considered alongside financial and risk-based metrics in a qualitative assessment to select the projects that, according to Sunnova, will have the most impact from an ESG perspective. The selection process could, however, be improved through incorporation of supply chain considerations, including life-cycle assessments of projects and products.

Sunnova demonstrates a commitment to transparency by publishing an annual ESG Report and externally verifying its selection process, use of proceeds and impact reporting.

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



### Strengths

It is a clear strength that Sunnova's framework focusses exclusively on solar energy and storage, with electricity from solar PV considered to substantially contribute to climate change mitigation while battery storage systems can help to facilitate increased reliance on renewable energy. By focusing exclusively on residential solar, Sunnova negates the local environmental harm (biodiversity, landscape etc.) large-scale renewable energy assets may cause.

Sunnova has an encouraging selection process, whereby its Green Finance Committee utilizes a range of metrics to select projects which, according to Sunnova, have the most impact from an ESG perspective. This will be strengthened further if Sunnova is able to incorporate its proposed Scope 3 emission calculations / targets into its ESG metrics and assessments. Sunnova's commitment to reporting is a further strength, in particular its willingness to report in accordance with SASB standards and its intention to engage its independent auditors to verify and report on its selection process, use of proceeds and impact reporting.

### Weaknesses

We find no material weaknesses in Sunnova's green finance framework.



### Pitfalls

While solar energy and energy storage systems are considered to have positive climate mitigation and resilience impacts, both solar PV cells and batteries can be energy-intensive to produce, transport and install/remove. As such, considerations of Scope 3 emissions are critical. It is good practice to adopt a life-cycle approach to calculating the environmental impacts of solar PV cells and batteries, which should extend to the recycling, re-use or disposal phase. Supply chain considerations should extend, where feasible, to social risks and local environmental impacts where raw materials are sourced, as noted in Sunnova's Environmental Policy.

Specific, quantitative environmental targets, set for various time horizons, allow for an assessment of ambition and easier measurement of progress. We encourage Sunnova to complete the process of setting short and medium-term climate targets and reiterate that it would be well served by including Scope 3 emissions in these targets, both of which Sunnova intends to do in its ESG report for the year 2021.

Sunnova's leased corporate headquarters are not currently powered by renewable energy, and its policy of electrifying its fleet vehicles would be strengthened through a specific percentage target. Reporting in accordance with the TCFD framework, which Sunnova intends to do in its ESG report for the year 2021, including the use of climate scenarios, would allow Sunnova and investors to understand, mitigate and adapt to its climate risk more fully.



# Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Sunnova Energy International Inc. Green Financing Framework (June 2021)	Sunnova's green financing framework
2	Powering the Future: 2020 Environmental, Social and Governance Report (April 2021)	Sunnova's ESG Report, containing, for example, its Scope 1 and Scope 2 GHG emissions
3	Code of Conduct (2020)	Sunnova's general code of conduct
4	Vendor Code of Conduct, Ethical Sourcing Policy and Human Rights Policy (May 2021)	Sunnova's vendor code of conduct, including in respect of environmental matters
5	Sunnova Environmental Policies (September 2020)	Document detailing Sunnova's various environmental policies, for example on climate change, waste reduction and green buildings



## 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).

