



Sogn og Fjordane Energi's (SFE) Green Bond Second Opinion

11.05.2021

Sogn og Fjordane Energi AS (SFE) is a regional power company located in the county of Vestland in Norway. SFE has a capacity of 465 MW installed from its hydro power plants, with an additional 51,3 MW linked to the Lutelandet wind power plant under construction. SFE owns 32,5% of the company Kraftfire AS, 100% of the associated distribution grid company Linja AS and 50% of the company Elbåtlader DA. The company is active in the region of Sogn and Fjordane only and does not have activities outside the region.

The eligible project categories in SFE's green bond framework are renewable energy, transmission of electricity, climate change adaptation, and clean transportation. Expected shares of proceeds going to the different categories are approximately 50-80% to renewable energy projects (mostly hydro power projects, but also wind power projects), 15-30% to transmission of electricity, and a smaller share to the categories of climate change adaptation and clean transportation. SFE will use the net proceeds to finance the construction and maintenance of new hydro power plants, including Østerbø and Jølstra, and considers financing the wind power plant in Lutelandet. The share of net proceeds that will go to new hydro power plants can reach a maximum of 300 GWh annually, with a maximum capacity of approximately 60 MW per plant according to the issuer. Investments linked to fossil energy generation are excluded.

The company has appropriate and relevant strategies and targets for the sector, including to become fossil free by 2030, and to become climate neutral as of 2021 by buying carbon offsets to balance its carbon emissions. SFE mentioned having started to report emissions, mainly for scope 1 and 2, and are in process of mapping product groups used by its suppliers. The company has further confirmed undertaking obligatory environmental impact assessments (EIAs) in the planning phase of all its projects, including climate risk and vulnerability assessments. The company also confirmed following national laws and regulations and obtaining licenses for their operations. However, environmental impact reporting does not include emissions from construction vehicles and machinery, and SFE has not yet implemented the TCFD recommendations, nor explicitly include different climate-related scenarios and projections. SFE has also previously experienced national opposition, however the company confirmed that it goes throughout a systematic process to screen both advantages and disadvantages associated with possible projects.

Based on the overall assessment of the eligible green assets and governance and transparency considerations, SFE's green bond framework receives a **CICERO Dark Green** shading and a governance score of **Good**. To improve, SFE could conduct life cycle assessments of major projects and establish more ambitious measures at the company level that go beyond what is required by regulations, in particular in some protected areas where SFE operates.

SHADES OF GREEN

Based on our review, we rate the SFE'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 SFE's framework to be **Good**.



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 **May 2021**. 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.

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 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 SFE's green bond framework and related policies

Sogn og Fjordane Energy AS (SFE) is a regional power company located in the county of Vestland in Norway. The company is active in the region of Sogn and Fjordane only and does not have activities outside the region. SFE has a capacity of 465 MW installed from its hydro power plants, with an additional 51,3 MW linked to the Lutelandet wind power plant under construction. The issuer mentioned that the electricity retail is sold out of the group, and SFE owns 32,5% of the company Kraftfire AS.

SFE is one of the largest power producers in Norway with about 250 employees. The Company owns fully or partially 27 hydro power plants, 1 wind power plant, and operates 25 of them. Services include operation, maintenance, and rehabilitation of existing production facilities, as well as the development of new power plants. Sogn og Fjordane Holding AS (SFH) owns 49,56% of SFE. SFH is owned by the county of Vestland (20%) and municipalities in the earlier county of Sogn og Fjordane by 80%. Its' annual turnover in 2020 was approximately 1.1 billion NOK, and the energy production is 2 TWh. Linja AS, previously named SFE Nett, is the associated distribution grid company owned at 100% by SFE, and has a customer base of 24 000 as well as the extension of the grid of 4 000 km. Linja AS does not own or operate any interconnectors to other countries.

The issuer has newly established the company Elbåtlader DA, together with the energy company BKK, in a 50/50 ownership. Elbåtlader DA aims to support the electrification of leisure boats and smaller commercial boats by establishing fast chargers in SFE's area. The company further joined INC Invest AS and established HyFuel AS with the aim to build a plant for production of hydrogen at Fjord Base in Florø.

Environmental Strategies and Policies

SFE's activities that cause direct pollution or emissions are mainly related to travel activities with passenger cars (1223,2 tons CO₂e in 2019) and helicopter transport in connection with construction, operation and maintenance of facilities. To reduce these emissions, SFE has a policy of using zero-emission transport by replacing fossil cars with electric cars when possible, as well as using modern technology to reduce the need for travel. The issuer further informed us that they started reporting emitted emissions, mainly for scope 1 and 2 (in tons of CO₂ equivalent emissions (CO₂e)) and aims at monitoring and reporting on scope 3 emissions in the future. The issuer also mentioned being in process of mapping product groups used by its suppliers in the latest projects. Data is, however, not yet available, but the company aims at incorporating emissions from suppliers in the future.

SFE's 2020 new corporate strategy aims at focusing on climate and sustainability via the development of strategies and measures to make its activity more sustainable, as well as via the development of products and services in electrification and sustainability in order to replace fossil fuels. These strategies and measures include reporting and keeping climate accounting, demanding climate-neutral delivery of products for large projects and/or projects with higher climate footprints, as well as implementing mitigating habitat measures and monitoring in watercourses and on land in relation to wind power impacts. SFE is further powering 100% of its operations on renewable electricity and have set as a target to become fossil free by 2030. Until realization of this target, the company will buy carbon offsets to balance its carbon emissions, thus becoming climate neutral as of 2021. Moreover, SFE will integrate the goods and services purchased and sourced for the facilities within its value chains through a circular economy's approach. However, SFE does not conduct LCA for all its projects at the moment.

SFE plans to take into account the environmental and social challenges of its projects in accordance with the policy for vassdrag og ytre miljø dated 2014. SFE undertakes obligatory environmental impact assessments (EIAs) in the planning phase of its projects, which include climate risk and vulnerability assessment, and involve environmental



expertise, in order to create a report with assessments. The company aims at addressing the potential impacts on the local biodiversity and the cultural heritage by integrating the landscape and local cultural values in the design phase. The company follows national laws and regulations, where environmental impact, as well as impact on biodiversity, are important requirements for attaining necessary permits. All new projects affecting the environment must be verified by the Norges Vassdrags- og Energidirektorat (NVE). SFE has previously experienced national opposition, however, the issuer informed us that for all project activity, SFE shall have a dialogue with, governing bodies, representatives of the general interests, local people/landowners, relate to local elected representatives as spokespersons, and engage with the local media.

The issuer aims at identifying physical climate risks over the asset or the activity lifetime, and at adopting adaptation measures in its renewable energy infrastructure. Monitoring systems and scenario analysis improving preparedness to extreme weather events are also part of SFE's climate change adaptation strategy. The Dam Safety Regulations also set requirements for e.g. flood and dam failure wave calculations in connection with classification of facilities, and SFE mentioned doing preventive maintenance, monitoring and supervision of facilities using climate scenarios to handle periods of external precipitation and to prevent damage floods in regulated watercourses. The issuer also confirmed that SFE has established, and continues to develop, models for its reservoirs and watercourses, and that through data collection, it is registered whether temperatures, precipitation and supply patterns change, and the results are considered in the work with model development and implementation of preventive measures. The issuer further confirmed conducting risk and vulnerability assessments at three levels; at the company level, at power plant level and at component level. The issuer is however not reporting in alignment with the TCFD recommendations at the moment, nor explicitly include different climate-related scenarios and projections, e.g., a 2° Celsius or higher emissions scenarios.

The issuer has received an Eco-Lighthouse certification ("Miljøfyrtårn") for its policies on work environment, procurement, transportation and waste management for the head office of the SFE Group in Sandane and the head office of Linja in Florø. The company is in the process of certifying a larger part of the group. In 2020, SFE became members of the Norwegian Climate partners Vestland, and established its own 'climate panel', which reports on climate accounts and environmental lighthouses, proposes climate measures in the group's business areas, and follows up on the goals set. The issuer mentioned that the climate panel will hold SFE accountable and collaborate to ensure climate work in the SFE group.

SFE has established a total of 4 green bonds between 2018-2019, representing NOK 1.100 millions that has been attributed to eligible green projects related to the construction, connection to distribution networks, and operation of hydro and wind power, and related infrastructure, as well as energy efficiency upgrades to distribution networks and smart grids¹. Since these 4 green bond issuances, SFE have stated tracking and reporting on climate impacts and aim to include more KPIs in its impact reporting.

Use of proceeds

An amount equal to the net proceeds of the Green Bond will finance or refinance, in whole or in part, investments undertaken by SFE or its subsidiaries (i.e., "Green Projects"). The issuer informed us that the refinancing share will most probably remain below 20% of total proceeds in the short term, but might increase when both green and non-green bonds will need to be refinanced. New green projects are defined as projects taken into operation less than 12 months prior to the approval by SFE's Green Bond Committee, while refinancing includes green projects taken into operation more than 12 months prior to the Green Bond Committee's approval, with no maximum look-back period. Green projects also include ownership or joint venture in a company deriving at least 90 % of its revenue from the green project categories in the framework. The issuer informed us that the remaining 10% is likely to be attributed to green hydrogen projects, however in the event that the remaining 10% would not be attributed to green hydrogen projects nor to other green project categories, it will nonetheless be reported.

[1 sfe-framework-may-2018.pdf](#)



Eligible green projects will fall into the following categories, including their likely share of net proceeds allocation: Renewable Energy (50-80%), Transmission of Electricity (15-30%), Climate Change Adaptation (1-15%), and Clean Transportation (1-5%). The distribution between new financing and refinancing will be reported in SFE's annual Green Bond reporting. SFE will use the net proceeds to finance the construction and maintenance of new power plants, such as its new projects in Østerbø operational since August 2020 (58% SFE-owned) and Jølstra (50% SFE-owned), which add a total of around 390 GWh of new renewable energy from hydro power to the market. The issuer is also considering financing the wind power plant in Lutelandet, already under construction.

Green Bond net proceeds will not be allocated to projects for which the purpose of the project is fossil energy production, nuclear energy generation, weapons and defense, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco. Moreover, investments and expenditures for fossil fuel machinery and/or equipment is not eligible for Green Bond 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.

Projects proposed under this green bond framework will be reviewed by a Green Bond Committee ("GBC"), chaired by the Chief Financial Officer, and consisting of the head from the treasury, environmental, and communications departments, as well as the chief of financial officer. Decision to allocate net proceeds will require a consensus decision by the GBC. The decisions made by the GBC will be documented and filed. The GBC will convene every 6 months or when otherwise considered necessary.

Green Projects shall comply with the eligibility criteria defined under the green project categories. SFE has also a dedicated professional environment and climate group who review all new projects. This group can, according to the issuer, advise and bring environmental concerns to the selection committee. Further, the issuer mentioned that the selection process includes compliance with international standards, such as the IFC standards and the EU Water Framework Directive. The process of evaluating and selecting eligible green projects as well as the allocation of Green Bond proceeds to eligible green projects comprise the following steps: 1. Sustainability experts and representatives within SFE evaluate potential Green Projects, their compliance with the green project categories, and their environmental benefits; and 2. A list of the potential green projects are presented to SFE's Green Bond. Furthermore, the company has previously experienced national opposition, but the company confirmed that it goes throughout a systematic process to screen both advantages and disadvantages associated with a possible project, including via e.g., dialogues with municipalities and land owners, and public consultations, in order to select eligible green projects.

The GBC is responsible for the decision to acknowledge the project as green, in line with the green project criteria. The GBC holds the right to exclude any Green Project already funded by Green Bond net proceeds. If a green project is sold, or for other reasons loses its eligibility, funds will then follow the procedure under Management of Proceeds until reallocated to other eligible green projects.

Management of proceeds

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

An amount equal to the net proceeds of the issue of the green bonds will be credited to a "Special Account" that will support financing of eligible projects. As long as the green bonds are outstanding and the special account has a positive balance, funds may be deducted when relevant, or at least annually, from the special account and added to SFE's Green Project portfolio in an amount up to all disbursements made during the relevant period with respect



to financing and/or refinancing of eligible projects. All transfers from the Special Account will be documented to ensure a full audit trail and to simplify the Green Bond reporting. The management of proceeds will be reviewed by an external auditor appointed by SFE going forward.

Proceeds yet to be allocated towards eligible assets will be placed in the liquidity reserves and managed as such. Temporary holdings will not be placed in entities with a business plan focused on fossil energy production, nuclear energy generation, weapons and defense, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

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.

SFE will annually and until maturity of the Green Bond issued, provide investors with a report (Green Bond Report) describing the allocation of proceeds and the environmental impact of the green projects. The report will be made available on SFE's website together with the Green Bond Framework.

The allocation reporting will include a summary of Green Bond developments; the outstanding amount of Green Bonds issued; the balance of the Green Projects in the Green Register (including any temporary investments and Green Bond repayments) and the available headroom in the value of the Green Projects (if any); the total proportion of Green Bond net proceeds used to finance new Green Projects and the proportion of Green Bond net proceeds used to refinance Green Projects; and the total aggregated proportion of Green Bond net proceeds used per green projects category.

The impact reporting, aggregated to some extent, will disclose, according to the issuer, the environmental impact of the green projects financed under this framework. The impact assessment is provided with the reservation that not all related data can be covered, e.g. if a plant is under construction but not yet operational, SFE will provide an estimate of future impact levels. The impact assessment of production and/or distribution will be based on estimated end user energy/CO₂ savings, since the end user is the intended beneficiary. The impact assessment will, when applicable, be based on Key Performance Indicators (KPIs), e.g., amount of renewable energy capacity generated (GWh per year), energy from renewables newly feed into the grid (MWh/per year), and the annual GHG emissions reduced/avoided (tons of CO₂ equivalent emissions (CO₂e)), compared to the impact reporting principles of the Nordic Public Sector Issuers Position Paper on Green Bond Impact Reporting, being 315g CO₂/kWh in 2020.

The internal tracking method, the allocation of funds, the management of proceeds will be verified by SFE's internal treasury function. The external auditor will provide, on an annual basis, limited assurance that an amount equal to the Green Bond net proceeds has been allocated to Green Projects, and be publicly available on SFE's website. The allocation report and the opinion of the internal compliance function will be made publicly available on SFE's website.



3 Assessment of SFE’s green bond framework and policies

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

Eligible projects under the SFE’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"> ✓ construction, acquisition, development, installation, operation, maintenance, and upgrades/modernisations of renewable energy production, related infrastructure and storage facilities, as well as related Research and Development (R&D) programmes. i. Hydropower: <ul style="list-style-type: none"> ✓ Existing hydropower plants and pumped-storage hydropower plants, and related investments to improve the capacity of the plant without enlarging the reservoir or increase in reservoir capacity by lowering without raising the water level. ✓ New hydropower plants and pumped-storage hydropower plants operating at life cycle 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Between 50-80% of the net proceeds will be attributed to this category and investments will be in the county of Vestland in Norway only. ✓ The issuer informed us that the production of energy is dedicated to the general public and not towards any gas and oil production. ✓ Most of the net proceeds attributed to this category will be attributed to hydropower projects. Hydropower is a clean and renewable energy source that contributes to Norway’s low grid emissions factor, but large hydropower facilities and associated construction/renovation projects can have impacts on the surrounding environment and biodiversity. ✓ The issuer informed us that the size of new and existing power plants can reach a maximum of 300 GWh annually, with a maximum capacity of 60 MW per plant. ✓ The issuer mentioned that it does not expect the life cycle emissions to be above 100 g CO₂eq/kWh. ✓ The Infrastructure, technology, and systems that increase the efficiency of management and operations can include the construction of access roads according to the issuer.



- emissions lower than 100gCO₂e/kWh.
 - ✓ Infrastructure, technology, and systems that increase the efficiency of management and operations.
 - ii. Wind Power:
 - ✓ Onshore and offshore wind power facilities.
 - ii. Hydrogen:
 - ✓ Hydrogen production out of renewable resources.
- ✓ The issuer informed us that several of its facilities are located in the edge zone of established protected areas, and that some of its hydropower plants and line networks have installations located within a protected area. For these cases, the protection came after the facilities were established. The issuer is still allowed to operate and maintain these facilities, but in some cases, special permits are required for access to the protected area. What is permitted and not, is authorized in the protection regulations for the individual protection area. However, CICERO Green encourages the issuer to develop more strict regulations at the company level when operating in these protected areas.
 - ✓ Wind power is a keys to a low-carbon transition.
 - ✓ Wind projects can have adverse local environmental impacts, including on birds and bats migration trajectories, and impacts on local communities.
 - ✓ In connection with wind projects, the issuer confirmed that it has obtained, via consultants, a calculation of CO₂ emissions from peatland and land areas that are laid under gravel / asphalt, as a result of roads and parking spaces for turbines. These data will be included in the calculations of the climate footprint of wind projects.
 - ✓ SFE mentioned that hydrogen will be produced by electrolysis, and that it will probably be a minority owner. The issuer confirmed that no construction of hydrogen power plant has started, and no permission is given to production plants at the moment.

Transmission of Electricity



- ✓ The financing or refinancing of the construction, acquisition, development, expansion, upgrade, operation, maintenance and interconnection of energy- and transmission systems as well as their associated infrastructure and related research and development programs.
 - i. Transmission & distribution:
 - ✓ Electricity transmission and distribution infrastructure
- Dark Green**
- ✓ The issuer informed us that the development of new power grids (mostly underground) is included in the framework.
 - ✓ The issuer confirmed that the transmission of electricity -all produced from water or wind-will not include fossil fuel elements.
 - ✓ Only about 67% of newly connected generation capacity in the electricity system is below the threshold of 100 gCO₂e/kWh (threshold based on the EU Taxonomy criteria for Transmission and distribution of electricity activity).
 - ✓ The issuer confirmed that storage could include battery (storage), and reservoir storing power.



of electricity produced out of renewable sources from its production site to the electricity grid with more than 67% of newly connected generation capacity in the electricity system is below the generation threshold value of 100 gCO₂e/kWh measured on a Product Carbon Footprint (PCF) basis, over a rolling five-year period.

ii. Integration of renewable energy and energy efficiency:

✓ Construction/installation and operation of equipment and infrastructure where the main objective is an increase of the generation or use of renewable electricity generation as well as energy efficiency including:

- 1) Sensors and measurement tools (including meteorological sensors for forecasting renewable production)
- 2) Communication and control (including advanced software and control rooms, automation of substations or feeders, and voltage control capabilities to adapt to more decentralised renewable infeed)
- 3) storage and demand-side management (e.g. smart grid)

Climate Change
Adaptation



✓ Measures to address climate change into the construction and operation of renewable energy systems contributing to a substantial reduction of the negative effects of climate change.

i. Adapted activities:

✓ Investments to strengthen an asset or activity to withstand

Dark Green

- ✓ Climate change adaptation is a necessary and important part of mitigating risks from climate change.
- ✓ The issuer mentioned that this category pertains to projects in other categories.
- ✓ The issuer mentioned that investments to strengthen an asset or activity to withstand identified physical climate risks over its lifetime can include, e.g. the fortification and rehabilitation of hydropower facilities and dams to ensure they can withstand



	<p>identified physical climate risks over its lifetime, that being adaptation measures in renewable energy infrastructure such as hydropower, wind power, energy transmissions and transport systems.</p> <ul style="list-style-type: none"> ✓ Monitoring systems and scenario analysis to improve preparedness to extreme weather events. 	<p>higher levels of precipitation, in accordance with NVE's dam safety regulations.</p> <ul style="list-style-type: none"> ✓ Monitoring systems and scenario analysis include, according to the issuer, the use of data and simulation to handle periods of external precipitation and to prevent damage floods in regulated watercourses. The issuer informed us that through data collection, it is registered if temperatures, precipitation, weather forecasts and supply patterns change, and the results are taken into account in the work with model development, in the implementation of preventive measures, as well as in the daily planning of power production.
<p>Clean Transportation</p> 	<ul style="list-style-type: none"> ✓ Acquisition, expansion or upgrades of low carbon transportation and their related infrastructure. i. Low carbon vehicles: Fully electric vehicles with zero tailpipe emissions ii. Low carbon infrastructure for transportation: ✓ Supporting infrastructure that is fundamental for the operation of the transport service and that promotes an increase in low and zero emission fleets, an improvement in fleet efficiency, and/or an improved efficiency of the overall transport/mobility system, including: <ol style="list-style-type: none"> 1) Infrastructure required for zero direct emissions transport, such as electric charging points and electricity grid connection upgrades. 2) construction and operation of electronic vehicle (EV) charging stations (land and water), and supporting electric infrastructure for the electrification of transport 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Electric vehicles qualify as dark green. ✓ Electric vehicles and other zero emission transport solutions, including charging infrastructure, contribute to the transition to a low-carbon society. However, be aware of the electricity grid emissions. ✓ Charging stations are essential for the electrification of the road transport sector. ✓ The production of batteries and sourcing of raw materials can have substantial climate and environmental impact. We therefore encourage SFE to become aware of these risks and focuses on strategic partnerships with the suppliers to address this.

Table 1. Eligible project categories



Background

Heat and electricity generation are responsible for over a quarter of the EU's greenhouse gas (GHG) emissions². Transitioning to a renewable energy system is therefore essential in order to reach long-term climate goals. In 2019, global renewable electricity generation rose by 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 still needs to expand significantly to meet the IEA's Sustainable Development Scenario (SDS) share of 50% of the generation by 2030³. 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 2030⁴.

In February 2020, Norway released updated targets for 2030 to cut emissions by 50-55% from 1990 levels⁵. Norway is projected to miss its 2020 emissions reductions target by around 4.5 million tCO_{2e} and needs fast action to reach the new 2030 goal. The government has outlined necessary steps to achieve this through the 'Klimakur 2030' analysis⁶. The analysis covers 60 emissions reductions measures in multiple sectors including energy, transport and industrials that will lead to a 50% emissions reduction by 2030. The implementation of electrification measures will make up for 34% of total emissions reductions between 2021-2030 in Norway.

The Norwegian hydropower system has a normal annual production of around 136 TWh and an aggregate power capacity of 32,700 MW. Norway currently has more than 800 reservoirs, with a storage capacity equivalent to around 87 TWh. Norway has around half of Europe's total reservoir capacity. Large storage capacity and high installed capacity provide the Norwegian hydropower system with significant flexibility. Most of Norway's reservoirs were built before 1990, but upgrades and expansions of power plants have increased reservoir utilisation capacity in recent years. Relatively little growth is expected in hydropower production in Norway in the next few years, as capacity investments in renewable energy are largely being channeled towards solar and wind power. One of the benefits of hydropower is that only negligible levels of greenhouse gases are emitted after a power plant has been built. Life cycle assessments (LCAs) show the total emissions in a product's life cycle from the extraction of raw materials to production, distribution, use, reuse, maintenance and recycling – to final disposal, including all transportation involved. Life cycle assessments of various power production techniques show that hydropower has very low emissions. Thus, the Norwegian Institute for Sustainability Research (NORSUS, previously Østfoldforskning) have calculated emissions from several Norwegian hydropower plants through life cycle assessments and the calculations show that the emissions from a typical Norwegian hydropower plant are approximately 3.3g CO₂-equivalents per kWh⁷. The net environmental gain from electrifying the energy supply is thus substantial.

Norwegian power demand is estimated to increase by 5.8 TWh to account for the electrification of many sectors towards 2030. In 2018, Norway produced 147 TWh of electricity and total consumption amongst all sectors was 136 TWh, while in 2030, it is expected consumption will increase to 159 TWh. Considering expansions in generation capacity from wind and hydropower, this will be well within Norway's expected generation capacity of 174 TWh. Electricity generation is expected to increase until 2022 due to investments in offshore wind power. Electrification measures will also require rapid extension of grid and charging infrastructure. This additional renewable energy capacity contributes to greater grid decentralisation and localisation, which enhances grid flexibility and resilience.

² [Power Generation and Transmission - E3G](#)

³ <https://www.iea.org/fuels-and-technologies/renewables>

⁴ https://ec.europa.eu/energy/sites/ener/files/documents/necp_factsheet_pl_final.pdf

⁵ <https://www.regjeringen.no/no/aktuelt/norge-forsterker-klimamalet-for-2030-til-minst-50-prosent-og-opp-mot-55-prosent/id2689679/>

⁶ <https://www.miljodirektoratet.no/globalassets/publikasjoner/m1625/m1625.pdf>

⁷ <https://norsus.no/wp-content/uploads/AR-01.19-The-inventory-and-life-cycle-data-for-Norwegian-hydroelectricity.pdf>



The IEA Sustainable Development Scenario estimates a required energy efficiency improvement rate of 3.2% per year through 2040, which is double the rate in the period 2000-2016, in order to be in line with the SDS scenario⁸. Energy efficiency investments, such as smart technology aimed at reducing energy consumption, are key to reducing emissions. Smart grids and grid upgrades are necessary to manage and increase the share of intermittent and decentralised renewable energy. Starting in January 2019, all Norwegian buildings were required by law to switch to digital electricity meters/smart meters that collect consumption data and deliver it to the centralised system run by Statnett. This contributes to a more efficient energy market and help customers to gain information about when energy prices are lower and shift their energy consumption accordingly.

Developing low-carbon hydrogen production is critical for hydrogen to aid in the clean energy transition. Most hydrogen is currently produced through emissions-intensive natural gas reforming and coal gasification. One of the main low-carbon production routes is through water electrolysis (green hydrogen), producing hydrogen from low-carbon electricity and water. In recent years, the number and size of projects and installed capacity have expanded considerably, from less than 1 MW in 2010 to more than 25 MW in 2019⁹. According to the Government of Norway's hydrogen strategy¹⁰, the government wishes to prioritise efforts in areas where Norway, Norwegian enterprises and technology clusters may influence the development of hydrogen related technologies, and where there are opportunities for increased value creation and green growth.

Governance Assessment

Four aspects are studied when assessing the SFE'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.

SFE aims at contributing to a low-carbon future through the generation of renewable energy. The company has appropriate and relevant strategies and targets for the sector, including becoming net zero emissions by 2030, and has received an Eco-Lighthouse certification ("Miljøfyrtårn"). The issuer further informed us having started reporting emissions, mainly for scope 1 and 2. However, the issuer does not report on scope 3 emissions yet, nor conducts LCAs for all its projects at the moment. SFE informed us undertaking obligatory environmental impact assessments (EIAs) in the planning phase of all its projects, which include climate risk and vulnerability assessment. The company also confirmed that it has established, and continues to develop, models for its reservoirs and watercourses, and that data and simulation are used to handle periods of external precipitation and to prevent damage floods in regulated watercourses. However, SFE has not implemented the TCFD recommendations, nor explicitly include different climate-related scenarios and projections yet, including a 2° Celsius or higher emissions scenarios.

SFE aims at addressing the potential impacts on the local biodiversity and on the local cultural heritage by integrating the landscape and local cultural values in the design phase. The company follows national laws and regulations, where environmental impact as well as impact on biodiversity are important requirements for attaining necessary permits. Furthermore, SFE has previously experienced national opposition, but the company confirmed that it goes throughout a systematic process to screen both advantages and disadvantages associated with a possible project, which include, e.g., dialogues with municipalities and land owners, and public consultations, in order to select eligible green projects.

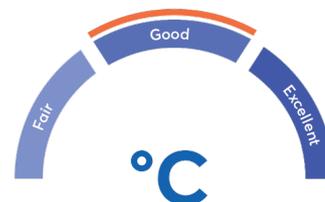
⁸ <https://www.iea.org/reports/energy-efficiency-2019>

⁹ <https://www.iea.org/reports/hydrogen>

¹⁰ <https://www.regjeringen.no/en/aktuelt/the-norwegian-hydrogen-strategy/id2704774/>



The selection criteria and process are both well defined, as is the management of proceeds, and environmental expertise assesses the environmental impacts of eligible projects. The issuer has created a Green Bond Committee, which includes a professional environment and climate group who review all new projects, advises and can bring environmental concerns to the selection committee, and decision to allocate net proceeds require consensus. Climate risks of projects' supply chain are not yet assessed in the selection process. The issuer further reports on both allocation of proceeds and impacts per projects or project category, where each is covered by at least one relevant KPIs. The allocation report and the opinion of the internal compliance function will be made publicly available on SFE's website. The external auditor appointed by SFE will also provide, on an annual basis, limited assurance that an amount equal to the Green Bond net proceeds has been allocated to Green Projects, and be publicly available on SFE's website.



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

Strengths

It is a clear strength that SFE updated framework focuses exclusively on low-carbon solutions, such as a clean, renewable efficient, cost effective grid. The issuer has an organizational focus on connecting renewable energy to the grid and reducing grid losses, resulting in a more efficient grid and a smoother demand curve. Because of the aforementioned energy mix of 98% renewables in the Norwegian grid, these investments are not expected to lock in. SFE framework will expand the provision of renewable energy and be a front runner in the region by adding electricity produced from hydroelectricity, wind, and green hydrogen. Under the renewable energy category, proceeds will be partially used to upgrade existing assets by improving the capacity of the plant without enlarging the reservoir or increase in reservoir capacity by lowering without raising the water level. This contributes to extending the lifetime of the assets and has the potential to deliver increased capacity by improving the efficiency of systems. Restorations and capacity improvement to existing sites can be considered positive for the environment and climate as this avoids local impacts and GHG emissions connected with new constructions.

The company has appropriate and relevant strategies and targets for the sector, including to become fossil free by 2030, and to become climate neutral as of 2021 by buying carbon offsets. To reach its target, the company has put into place relevant mitigation and adaptation strategies and policies, including a policy of using zero-emission transport by replacing fossil cars with electric cars when possible, as well as using modern technology to reduce the need for travel. The issuer also has the goals to start monitoring and reporting scope 3 emissions in the future, as well to start mapping product groups used by its suppliers and incorporating emissions from its suppliers.

It is the Norwegian Water and Energy Resources Directorate (NVE) who is managing the water and energy resources in Norway. In accordance with the Energy and/or Water Course Act, the construction of energy production facilities larger than 1 MW need a license from the NVE. Old hydropower plants (established before 1917 when the "Water resource Act" was introduced) will normally not possess a license but will be subject to the same laws as plants with licenses. Relevant authorities conduct audits to monitor compliance of the licenses they issue. SFE has informed us that they are following national laws and regulations and obtain licenses for their operations where required. The company assures completion of EIAs and alignment with the policy for vassdrag og ytre miljø dated 2014, EU water framework directive (WFD), the IFC standards, as well as adherence to requirements related to impacts on biodiversity and habitats. The company follows national laws and regulations, where environmental impact as well as impact on biodiversity are important requirements for attaining necessary permits. All new projects affecting the environment must be verified by the Norges Vassdrags- og Energidirektorat (NVE). The issuer further mentioned following the regional management and action plan for water, and are often required to take measures related to fish migration in rivers and fish mortality in turbines that must be approved by the authorities (NVE, miljødirektorat).



Weaknesses

No significant weaknesses perceived.

Pitfalls

SFE has confirmed that they will use proceeds from the green bond framework to fund new large hydropower plants (with a maximum 60 MW per plant), as well as access road construction as part of “the Infrastructure, technology, and systems that increase the efficiency of management and operations.” Large-scale hydro risks negative environmental impacts in the form of flooded or disrupted ecosystems, deforestation, and emissions from construction and changes in land use. However, according to the issuer, SFE complies with and exceeds Norwegian regulations for active flood control upstream and downstream, as determined by relevant concessions and licenses, as well as use of voluntarily monitoring systems and scenario analysis to handle periods of external precipitation and to prevent damage floods in regulated watercourses.

climate risks and vulnerability assessments are part of the hydro power and climate adaptation projects. Increased precipitation represents both an opportunity, but also a potential risk related to dam collapse. It is therefore very good that SFE include climate change adaptation as a separate category in their framework. However, the issuer would benefit from being aligned with the TCFD recommendations, e.g., from explicitly including different climate-related scenarios and projections, including, including a 2° Celsius or higher emissions scenarios.

While renewable energy projects generally are considered to have positive climate mitigation impacts, there are nevertheless emissions associated with the construction process. CICERO Green encourages SFE to systematically conduct life cycle assessments of major projects. 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.

Environmental impact reporting does not include emissions from construction vehicles and machinery. Road construction typically involves the use of heavy fossil-fuel powered machinery and emissions-intensive materials like cement, and can introduce risks of soil or water contamination from construction materials. The issuer has confirmed that it does not measure or report emissions from construction of power plants or related infrastructure in the decision-making process. We encourage SFE to measure, monitor, and report this data to further strengthen the framework.

The issuer mentioned that they do not require emissions as part of the procurement policies for potential subcontractors and suppliers at the moment. Including subcontractor GHG data and reports into the policies and selection requirements for subcontractors, as well as reporting on these emissions annually would further strengthen the framework.

The issuer reports its company’s scope 2 emissions with a grid factor of 17 g CO₂ / kWh, based on the new product declaration on electricity in the Norwegian market. However, in order to report CO₂ emissions avoided, SFE has chosen a different grid factor (315g CO₂/kWh) from the Nordic Public Sector Issuers Position Paper on Green Bond Impact Reporting. This represents an inconsistency and can lead to confusion for investors.

Another concern is that several of the company’s facilities are located in the edge zone of established protected areas, and that some of the company’s hydropower plants and line networks have installations located within a protected area. In these cases, the protection came after the facilities were established. The issuer informed us still being allowed to operate and maintain these facilities, but in some cases, special permits are required for access to the protected area. What is permitted and not, is authorized in the protection regulations for the individual protection area. The company informed us following strict regulations, however, it does not appear that the issuer is going beyond regulations on that matter, and therefore CICERO Green encourages the company to establishing more ambitious measures at the company level that go beyond what is required by regulations.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	SFE updated Green Bond Framework dated 07.05.2021	Updated version. 07.05.2021
2	SFE faktaark - Green bonds dokumentasjon 2021	SFE's facts sheet. Green bonds documentation 2021
3	Innkjøpsstrategi	Purchasing strategy. (40ADMDOK - 1111670 - 1 - 8) - 1
4	SFE Produksjon - Policy for Energy Sustainability Climate and Environment	2020-12-04 SFE Produksjon - Policy for Energy Sustainability Climate and Environment (99STYRD - 1578701 - 1 - 1) - 1



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).

