



Statkraft

Green Finance Second Opinion

January 29, 2020

Statkraft is a fully Norwegian government owned energy company. With an annual total power production of 62TWh Statkraft is Norway's largest and the Nordic region's third largest energy producer. Renewable power production represents 98% of Statkraft's power production, while 2.4% are based on gas-fired power (Germany) and district heating using fossil fuel for peak and reserve capacity (Norway and Sweden). Hydropower contributes the largest share of Statkraft's power generation capacity (92.7% of total). Statkraft's power capacity of 17,831MW are located in Norway (68%), other Nordic countries (10%), other European countries (17%) and the rest of the world (5%).

The green finance framework lists eligible projects within the renewable energy category and the clean transportation category. More than 90% of proceeds are expected to be allocated to hydro, wind and solar power projects. Statkraft excludes from financing nuclear as well as fossil fuel energy generation projects. Ca. 70% of the projects are expected to be in Europe and 30% in emerging markets. Wind power construction in Norway occasionally faces local resistance. There is a risk that the equipment financed under this framework could be involved in such projects. Statkraft informed us that they are using a decision gate model for ruling out controversial projects that could be financed with green bonds and loans and that Statkraft will report on all wind farm and hydro projects.

It is notable that Statkraft has a strategic goal of growth solely within renewable energy technologies, but has no quantitative emissions reduction/zero emission target. While renewable energy projects generally are considered to have a very positive climate impact, there are nevertheless emissions associated with some projects (e.g., construction of large hydropower or large wind farms etc.). Statkraft includes some considerations on supply chain emissions in the selection process, but the issuer currently has no strategy in place to systematically reduce construction emissions. CICERO Shades of Green encourages Statkraft to systematically measure, report and manage biodiversity loss and significant emissions from water reservoirs and construction that are currently not monitored by Statkraft.

The framework allows for investments in large hydropower projects in all regions globally. While Statkraft has a long-standing track record working with hydropower, there are still substantial social and environmental concerns that arise from large hydropower projects, such as displacement of local populations, biodiversity loss and significant emissions from water reservoirs that are currently not monitored by Statkraft. It is Statkraft's responsibility to follow the highest standards possible to minimize negative impacts of large hydro projects.

Based on the overall assessment of the projects that will be financed under this framework, and governance and transparency considerations, Statkraft's updated green finance framework receives a **CICERO Dark Green** shading and a governance score of **Excellent**.

SHADES OF GREEN

Based on our review, we rate the Statkraft'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 Statkraft's framework to be **Excellent**.



GREEN BOND PRINCIPLES 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 December 2019. 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, the governance aspects are carefully considered and reflected in the overall shading of the green finance framework. 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.



2 Brief description of Statkraft's green finance framework and related policies

Statkraft is a fully Norwegian government owned energy company. With an annual total power production of 62TWh Statkraft is Norway's largest and the Nordic region's third largest energy producer. Renewable power production represents 98% of Statkraft's power production, while 2.4% are based on gas-fired power (Germany) and district heating using fossil fuel for peak and reserve capacity (Norway and Sweden). Hydropower contributes the largest share of Statkraft's power generation capacity (92.7% of total).

Statkraft's power capacity of 17,831MW are located in Norway (68%), other Nordic countries (10%), other European countries (17%) and the rest of the world (5%).

Environmental Strategies and Policies

Statkraft has a strategic goal of growth solely within renewable energy technologies, but has no quantitative emissions reduction targets. This includes optimizing and expanding hydropower portfolios as well as a ramp up of wind and solar. In 2018, Statkraft had total emissions of 590,400t CO₂ (Scope 1, 2 and 3) mainly due to gas power plants (92% of emissions) particularly in Germany. Scope 3 emissions reporting currently only covers Norwegian operations, but is considered to be expanded within the ongoing development of the sustainability strategy. Total emissions declined by 35.2% compared to 2017. According to the issuer, this was mainly due to less operations of gas power plants and less projects running. Emissions from gas power are expected to increase again in the years to come. The issuer informed us that Statkraft currently does not invest in gas-fired power plants and that no new gas-fired power plants are in the pipelines.

In 2018, overall carbon intensity amounted to 9kg CO₂/MWh (14kg CO₂/MWh in 2017) due to gas-fired power generation in Germany and fossil-based peak and reserve capacity in district heating in Norway and Sweden. The production of gas-fired power is covered under the EU ETS. Statkraft purchases guarantees of origin and 100% of remaining greenhouse gas emissions are compensated with Certified Emissions Reductions in line with Statkraft's commitment to the UNFCCC's climate neutral now pledge. According to the issuer, Statkraft currently has a strategy to become 100% renewable in the district heating sector, but does not have any plans to phase out gas-fired power plants.

Statkraft is member of the UN Global compact, operates according to ISO 14001 and reports according to the Global Reporting Initiatives (GRI) Standards. According to Statkraft's Corporate Responsibility and HSE policy, "Statkraft's assessment and management of climate change impacts are based on research, comprehensive analysis and scientific evidence, including assessments by the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC)".

Statkraft has identified key physical climate risks on hydrological performance, such as changes in precipitation patterns, water scarcity, flooding and ecosystem services. This includes continuous adaptation and long-term planning measures for the hydro assets. Statkraft provides an annual "Low Emissions Scenario Report" for policy input to the EU and other policy makers. Statkraft has not yet implemented the TCFD recommendations according to the issuer.



Use of proceeds

According to the green finance framework, proceeds from green bonds and loans will be used to finance or refinance assets within the two project categories renewable energy and related infrastructure and clean transportation. According to the issuer, more than 90% of the proceeds are expected to be allocated to the renewable energy category. Projects are only eligible if they exceed a volume of NOK 50 million of total investments. Green loans and bonds are used for financing acquisition and development of projects as well as refurbishment and upgrade of existing eligible projects. The issuer informed us that approximately 70% of the projects are expected to be in Europe and 30% in emerging markets. Projects are considered as new if they are not older than 12 months. Projects are refinanced if they are older than 12 months. Over the next five years, Statkraft expects ca.75% of the use of proceeds to be allocated to financing new projects.

Currently, Statkraft aims to invest an annual total of NOK 10 billion in renewable energy until 2025. Statkraft excludes from financing nuclear as well as fossil fuel energy generation projects. According to the issuer, green bond and green loan proceeds will not be used for purchase of guarantees of origin.

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 are evaluated, selected and approved in consensus by representatives from the Treasury department and the Corporate Responsibility & Compliance department. The latter is required to have environmental expertise. According to the issuer, Statkraft has in place a decision gate model for major development projects, mergers and acquisitions that aims at ensuring a unified approach to, e.g., sustainability from early development phase to operation. This process is used to exclude potentially controversial projects. The issuer informed us that the Corporate Responsibility & Compliance department and the Treasury department can potentially rule out controversial projects in their evaluation process.

Management of proceeds

CICERO Green finds the management of proceeds of Statkraft to be in accordance with the Green Bond Principles and in accordance with the Green Loan Principles. Proceeds are managed by the Treasury Department and an amount equal to the net proceeds is credited to a Green Account. From this account, funds are deducted and allocated to Statkraft's green project portfolio on an annual basis as long as the account has a positive balance. Should the amount of proceeds exceed the green project portfolio, the proceeds will be managed in Statkraft's liquidity reserve. According to the issuer, Statkraft invests surplus cash only in credit instruments (commercial paper, short dated bonds, O/N deposit, time deposits). Statkraft informed us that the surplus cash is mainly invested in Norway and with limited exposure to companies that operate in the fossil-fuel business.

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.

Statkraft will report annually on impacts and allocation incl. a split between loans and bonds in an investor letter that will be published on Statkraft's website. The reporting will be compiled by the Corporate Responsibility &



Compliance department and the Treasury department and will be on project level where possible. Statkraft currently expects that the impact of a significant share of projects will be reported on a project-by-project level. Statkraft confirmed that they will report on all wind farm and hydro projects.

Reported metrics, e.g., include:

- Installed capacity power generation/district heating (MW)
- Power generation/district heating production (MWh)
- Capacity under development (MW)
- Emissions of CO₂ equivalents (tonnes)
- Avoided emissions of CO₂ equivalents (tonnes)

The allocation of proceeds will be externally reviewed by an external auditor. The impact reporting will not be externally reviewed.



3 Assessment of Statkraft’s green finance framework and policies

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

Eligible projects under the Statkraft’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 bonds and loans 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 and related infrastructure 	Hydropower, wind power and solar power	Dark Green <ul style="list-style-type: none">✓ Solar and wind power are key to a low-carbon transition✓ Large scale hydro potentially features significant local environmental impact and could, e.g., trigger water scarcity in the respective region. Both, acquisitions and greenfield projects are eligible and both, run-by-river and dam related plants, will be financed. Statkraft will also continue to invest in upgrades/refurbishment of existing hydro power plants.✓ Wind power projects sometimes face local resistance (e.g., in Norway)



- ✓ Potential concerns regarding supply-chain emissions of energy generation technology (e.g., solar cells)
- ✓ According to the issuer, Scope 3 emissions are not fully included in Statkraft's CO₂ statement, but emissions in the supply chain will be included in the project evaluation and approval process.
- ✓ All construction projects can have adverse local environmental impacts

Clean transportation Infrastructure for charging electric vehicles



Dark Green

- ✓ This category supports EV charging through investments in hardware and installation works
- ✓ New distribution lines are excluded from financing

Table 1. Eligible project categories

Background

Global electricity demand increased 4% in 2018, with low-carbon generation expanding 6% to meet a considerable share of this growth. Nevertheless, power sector CO₂ emissions rose by 2.5%, with coal responsible for 80% of this increase. In 2018, 42% of all energy-related CO₂ emissions came from the power sector, causing it to remain the largest source of energy-related CO₂ emissions. Investments in the rapid transition to renewable energy powered economies are therefore increasingly critical.

Despite these positive trends in the expansion of renewable electricity generation (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 2017.¹ The IEA's Sustainable Development Scenario (SDS) suggests a global wind power generation of 14,100TWh in 2040 up from 1,500TWh in 2017.²

Norway has the lowest emissions from the power sector in Europe, with a total installed renewable power of 35.3GW installed capacity and 147TWh produced in 2018.³ Hydropower contributed 95% of the total electricity production in 2018 and 92% of total installed capacity. 4.8% of Norwegian production capacity is contributed by wind and 3.1% by thermal power (e.g., waste incineration or gas power).

¹ <http://www.iea.org/tcep/power/renewables>

² <https://www.iea.org/weo2018/scenarios/>

³ <https://www.ssb.no/en/energi-og-industri/statistikker/elektrisitet/aar>



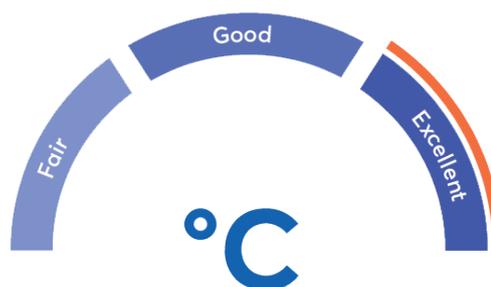
The main electricity consumers in Norway are the mining and manufacturing industry (44.9%), other services (21.3%) and private households and agriculture (33.9%).³

Global transport emissions grew by only 0.6% in 2017 (compared to 1.7% annually over the past decade), as efficiency improvements, electrification helped limit the growth in energy demand. To meet the 2°C target goals, however, direct transport emissions must peak around 2020 and then fall by more than 9% by 2030.⁴ The largest amount of carbon savings come from switching from inefficient modes of transport (e.g., private cars) to mass transit.⁵ In regions where the electricity grid is highly based on low carbon sources such as in the Nordic countries and/or have in place ambitious policies to make the grid greener (such as in the EU), electric cars clearly represent environmental benefits compared to fossil fuel cars in the longer term. The charging infrastructure for electric cars needs to be developed in parallel to greening the grid.

Governance Assessment

Four aspects are studied when assessing the Statkraft'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.

Statkraft has in place a sound management and governance structure, as well as regular and transparent reporting about green bond and green loan project achievements to investors and the public. Statkraft has a strategic goal of growth solely within renewable energy technologies. The issuer also informed us that Statkraft has an ambition to become 100% renewable in the district heating sector and currently, no new gas-fired power plants are in the pipeline. Despite not reporting according to TCFD, yet, Statkraft has identified key physical risks and provides an annual "low-emissions" scenario report. In addition, Statkraft has a selection process that is based on consensus and emissions in the supply chain will be included in the project evaluation and approval process. In addition, Statkraft informed us that they are using a decision gate model for ruling out controversial projects that could be financed with green bonds and loans. Statkraft has not included a look-back period for refinancing in the framework, which could potentially lead to refinancing older projects. Statkraft expects that impact of a significant share of projects will be reported on a project-by-project level but will not obtain an external review of the impact reporting. In addition, Statkraft confirmed that they will report on all wind farm and hydro projects. The overall assessment of Statkraft's governance structure and processes gives it a rating of **Excellent**.



Strengths

It is a clear strength that the framework focuses exclusively on low-carbon solutions and that emissions in the supply chain will be included in the project evaluation and approval process according to the issuer. This is supported by Statkraft's overall growth strategy solely in the renewable energy technologies. In addition, Statkraft publishes an extensive annual low emissions scenario analysis. The issuer also informed us that Statkraft currently does not invest in gas-fired power plants and that no new gas-fired power plants are in the pipelines. However, Statkraft's low-carbon growth strategy does not entail an emissions reductions ambition for its gas-fired power

⁴ <http://www.iea.org/tcep/transport/>

⁵ https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter8.pdf



plants, as, according to the issuer, emissions from gas-fired power are expected to increase again in the years to come through an expected higher utilization rate of existing plants.

It is a strength that Statkraft works with several partners on expanding charging infrastructure for vehicles (e.g., Grønn kontakt, E-wald and eMobility). Rapidly building out the charging infrastructure for electrified transport is crucial for the transition in the transportation sector.

Weaknesses

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

Pitfalls

While renewable energy projects generally are considered to have a very positive climate impact, there are nevertheless large emissions associated with the construction process (e.g., with large hydropower, large wind farms etc.). While Statkraft includes some considerations on supply chain emissions in the selection process, the issuer currently has no strategy in place to systematically reduce construction emissions. CICERO Shades of Green encourages Statkraft to systematically measure, report and manage emissions that are associated with construction projects. Currently, only emissions from electricity consumption in the construction process are included in the emissions accounting.

Large hydropower projects can materialize as a pitfall. This is partly mitigated by Statkraft having identified key physical climate risks on hydrological performance, such as changes in precipitation patterns, water scarcity, flooding and ecosystem services. While Statkraft has a long-standing track record working with hydropower, there are still substantial social and environmental concerns that arise from large hydropower projects, such as displacement of local populations, biodiversity loss and significant emissions from water reservoirs that are currently not monitored by Statkraft. It is Statkraft's responsibility to follow the highest standards possible to minimize negative impacts of large hydro projects, such as biodiversity loss, significant emissions from water reservoirs and construction.

According to the issuer, the project evaluation and approval process is yet not fully developed and approved, but will build on existing project evaluation criteria, taking into account e.g. life cycle assessment, existing challenges and local resistance. There is a risk that the equipment financed under this framework could be involved in controversial projects, such as wind farms (e.g., in Norway). Statkraft informed us that they are using a decision gate model for ruling out controversial projects that could be financed with green bonds and loans. In addition, Statkraft confirmed that they will report on all wind farm and hydro projects.

According to Statkraft, avoided and/or reduced emissions of CO₂ equivalents are currently reported with a European sector average. This can potentially be misleading as, e.g., in Norway or other Nordic countries, the emissions factor can be significantly lower than the European average.

CICERO Green encourages Statkraft to fully implement TCFD recommendations to more systematically report on potential climate risks. This pitfall is partially mitigated as Statkraft has already identified key physical climate risks on hydrological performance, such as changes in precipitation patterns, water scarcity, flooding and ecosystem services. This includes continuous adaptation and long-term planning measures for the hydro assets. In addition, Statkraft provides an annual "Low Emissions Scenario Report" for policy input to the EU and other policy makers.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Green Finance Framework	Green Finance Framework CICERO
2	Annual report 2018	https://www.statkraft.com/globalassets/1-statkraft-public/05-investor-relations/4-reports-and-presentations/2018/annual-report-2018/2018-annual-report-statkraft-as.pdf
3	Vision and Values	Statkraft's overview of vision, values and strategy: https://www.statkraft.com/about-statkraft/vision-values-and-strategy/
4	Code of Conduct	Statkraft's Code of Conduct: https://www.statkraft.com/globalassets/1-statkraft-public/1-about-statkraft/cr/statkrafts-code-of-conduct-2016v.pdf
5	Sustainability policy/strategy and report	Statkraft's CR & HSE policy
6	Environmental policy/strategy and report	Statkraft's CR & HSE policy for environmental management and environmental management in projects
7	Social responsibility policy/strategy	Statkraft's CR & HSE policy CR & HSE policy for human rights management and indigenous peoples
8	Supply chain policy and management	Statkraft's CR & HSE policy for supplier code of conduct and environmental social and human rights check list
9	Relevant internal policies/guidelines	Statkraft's management system
10	2019 Global Energy Trends: Statkraft's Low Emissions Scenario	Statkraft's scenario 2019 for a low emissions development



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).

