CICERO
Center for International
Climate Research

‘Second Opinion’ on Ørsted’s Green Bond Framework

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Summary

Overall, Ørsted's Green Bond Framework, together with its ambitious climate policies, annual company reporting and its Programme for Sustainable Biomass Sourcing, provide a sound base for climate friendly investments. Ørsted's Green Bond Framework is in line with the recommendations of the Green Bond Principles. The framework lists eligible projects that support the objective to promote the transition to low carbon, climate resilient growth and a sustainable economy. The company has clear guidelines for the management of the green bond proceeds. Ørsted will report on various indicators of projects financed by the green bond proceeds. These reports will be available to both investors and the public.

The framework promotes climate mitigation measures in the form of renewable energy and energy efficiency projects, such as energy storage, power hub systems and smart meters. Renewable energy projects will encompass investments in new and existing offshore wind energy projects. The issuer has informed that at least 75 percent of proceeds are intended be allocated to offshore wind farm projects. The framework also includes investments in bioenergy. Proceeds are intended to be used to convert existing coal-fired heat and power plants to run on biomass. The conversion itself will not disable plants from burning coal on a technical basis. However, Ørsted has publicly communicated the goal to replace all use of coal with sustainable biomass by 2023 in order to cut the emission intensity of its heat and power production. Due to the company's overall strategic orientation towards renewable energy generation, manifest in divestments from the upstream oil and gas business and increased investment plans for offshore wind, the conversion of plants and shift to biomass clearly represent important steps towards the long-term vision of a low carbon future. Investments in bioenergy will also include projects that extract energy and valuable products from waste.

Based on the assessment of the project types that will be financed by the green bond, and the assessment of policies, goals and reporting standards, Ørsted's Green Bond Framework receives a Dark Green shading.

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1 Introduction and background

As an independent, not-for-profit, research institute, CICERO (Center for International Climate and Environmental Research - Oslo) provides Second Opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The Second Opinion is based on documentation of rules and frameworks provided by the institutions themselves (the client) and information gathered during meetings, teleconferences and e-mail correspondence with the client.

CICERO 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 has established the global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, to broaden the technical expertise and regional experience for Second Opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for Second Opinions. In addition to CICERO, ENSO members currently include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy. A more detailed description of CICERO can be found at the end of this report. ENSO encourages the client to make this Second Opinion publically available. If any part of the Second Opinion is quoted, the full report must be made available.

CICERO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. CICERO does not validate or certify the climate effects of single projects, and thus, has no conflict of interest in regard to single projects. CICERO is neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor the outcome of investments in eligible projects.

This note provides a Second Opinion of Ørsted Green Bonds Framework and policies for considering the environmental impacts of their projects. The aim is to assess the Ørsted Green Bonds Framework as to its ability to support Ørsted`s stated objective of promoting the transition to low-carbon and climate resilient growth.

This Second Opinion is based on the green bond framework presented to CICERO by the issuer. Any amendments or updates to the framework require that CICERO undertake a new assessment. CICERO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long-run. CICERO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. CICERO assesses in this Second Opinion the likeliness that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with 'shades of green'

CICERO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds and the robustness of the governance structure of the Green Bond

Framework. The grading is based on a broad qualitative assessment of each project type, according to what extent it contributes to building a low-carbon and climate resilient society.

This Second Opinion will allocate a 'shade of green' to the green bond framework of Ørsted:

- **Dark green** for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically, this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- **Medium green** for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- **Light green** for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil-based processes).
- **Brown** for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations also factor in, as they can give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework.

2 Brief Description of ØRSTED's Green Bond Framework and rules and procedures for climate-related activities

Ørsted is a Danish based energy company engaged in the production, distribution and sale of electricity, heat and gas. Ørsted is the global leader in installed offshore wind capacity. Until recently, the company was known as DONG Energy, with its roots in North Sea oil and gas transmission, development and production. About 10 years ago, DONG started its shift towards renewable energy, especially offshore wind power. The company sold its upstream oil and gas business in September 2017. In October 2017, DONG Energy changed its name to Ørsted to underline the shift towards renewable energy production. The company has around 5600 employees and is majority owned by the Danish state. Operations are located mainly in Denmark, UK and Germany. Outside of Europe, Ørsted is developing projects mainly in the USA and Taiwan.

The business area Bioenergy and Thermal Power consists of combined heat and power plants. Coal stands for 46 % of the used fuel (2016), biomass for 32 % and natural gas for about 20 %. The use of fuel oil is limited to starting-up of power stations. Ørsted has adopted the strategic goal to completely phase out the use of coal and replace it with sustainable biomass by 2023. The company aims to cut the emission intensity of its operations by 96 % in 2023, compared to 2006. Ørsted also operates a waste management plant in the UK where unsorted municipal waste is recycled and used for power production based on extracted biogas. The business area Distribution and Customer Solutions consists of distribution and sale of electricity and natural gas in Denmark and Northwestern Europe.

Ørsted is party to several climate and development initiatives, among them the UN Global Compact and the Carbon Disclosure Project.

Definition:

Eligible projects are within the field of climate mitigation. Eligible technologies are renewable energy and energy efficiency. Proceeds may be used to fund in whole or in part the purchase, development and construction of eligible projects by Ørsted or its subsidiaries. The green bond proceeds may also be utilized to renovate, upgrade and refinance existing eligible projects. The issuer informed CICERO that at least 75% of proceeds are intended for new investments. Projects will be located in Northwestern Europe and other markets where Ørsted has its activities. The framework states that green bond proceeds will not be used to finance nuclear or fossil energy generation projects. All eligible projects financed wholly or in part by green bond proceeds are going to be included in the "Green Project Portfolio". Projects will be excluded from this portfolio if they for whatever reason seize to fulfill the criteria.

Selection:

Projects fulfilling the eligibility criteria will be evaluated, selected and prioritized by the Sustainability Department in consensus with the Treasury Department. The final decision to allocate green bond proceeds to an eligible project lies with the Sustainability Committee. Decisions have to be taken in consensus, which means that financing a project with green bond proceeds could be stopped for sustainability reasons. On a quarterly basis, the Sustainability and Treasury Departments will present prioritized projects to the Sustainability

Committee for final approval. Only projects fulfilling the eligibility criteria will be financed using green bond proceeds.

Management of proceeds:

Proceeds from the Green Bonds will upon issuance be transferred to an internal "Green Account". On a quarterly basis, funds from this account, upon approval from the Sustainability Committee, based on expenditures made in the previous quarter, will be allocated from the "Green Account" to the Ørsted master account. Actual payment is therefore initially made from the liquidity reserve of Ørsted. This will continue for as long as the balance on the "Green Account" is positive and for as long as there are bonds outstanding. The unallocated balance on the "Green Account" will be placed in liquidity reserves until disbursement to eligible projects.

Green Bond Proceeds which are part of the liquidity reserve will be placed in cash, government bonds and Danish mortgage bonds.

Transparency and Accountability:

Ørsted will publish an annual investor letter containing information on: Projects that have been financed, project characteristics, the allocated amounts and expected environmental impacts. The letter will also outline the share of proceeds that has been used for new investments and refinancing, as well as the unallocated balance. The letter will also provide information on any new developments in the company's Green Bond reporting.

In projects only partly financed by green bond proceeds, the company informed CICERO that it aims to disclose impact calculations for the shares which have been financed by the green bond proceeds, unless not possible for competitive reasons.

According to the framework, the issuer aims to report on criteria such as the added amount of renewable energy capacity, as well as on negative environmental impacts avoided or reduced. Ørsted has informed CICERO that the company is currently finalizing its methodology for how to calculate avoided CO_2 emissions.

Ørsted will appoint a qualified external auditor to verify the internal tracking and allocation of green bond proceeds.

According to the framework, the investor letter including the auditor's opinion will be available on Ørsted's website. The same applies to the Green Bond Framework and this Second Opinion report.

The table below lists the documents that formed the basis for this Second Opinion:

Document Number	Document Name	Description
1	Ørsted Green Bonds Framework October 2017	
2	DONG Energy annual report 2016	
3	Ørsted Sustainability Commitment	Setting out the company's position on the environment, labour and human rights, rule of law and anti-corruption, economic development, and sustainability reporting.
4	DONG Energy Sustainability report 2016	
5	Sustainability report data appendix 2016	
6	DONG Energy offering circular	Comprehensive description of company's activities in connection with its initial public offering.
7	DONG Energy Final CDP response 2017	Reporting under the Carbon Disclosure Project
8	Code of Conduct for business partners	General and specific expectations towards suppliers regarding human rights/labor rights, environment, anti-corruption
9	Ørsted's Programme for Sustainable Biomass Sourcing	Sustainability requirements for suppliers of biomass

Table 1. Documents reviewed

3 Assessment of ØRSTED Green Bond framework and environmental policies

Overall, the Ørsted green bond framework provides a detailed and sound framework for climate-friendly investments.

The framework and procedures for Ørsted'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, whereas the weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where issuers should be aware of potential macro-level impacts of investment projects.

Eligible projects under the 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 certainty to investors 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
Offshore Wind Farms and other renewable energy production types	• Investment activities related to development, construction and installation of offshore wind farms. Investments can be related to wind turbines, blades, foundations, cables, transmission assets and any other element relating to the completion of an offshore wind project	Dark Green ✓ These investments could have negative impacts on marine biodiversity. The issuer informed CICERO that EIA will be conducted to avoid damages to biodiversity. ✓ The issuer has informed CICERO that lifecycle assessment, including emissions during construction, is not yet part of the standard process. CICERO encourages Ørsted to strive to consider

		lifecycle factors in the implementation of the framework.
	• Other renewable energy production types	✓ According to the issuer, there are currently no concrete plans for investments that could qualify under other renewable energy projects. For such projects, net positive climate impacts need to be ensured, and potential environmental negative effects need to be scrutinized and avoided to the extent possible.
Bioenergy		Medium to Dark Green
	• Conversion of central power stations by replacing coal and gas with sustainable biomass. Biomass must be sustainable so that the incineration is CO_2 neutral and biodiversity is protected.	✓ Conversion of plants and shift to biomass clearly represent important steps towards the long-term vision of a low carbon future.
	• Projects that extract energy and valuable products from waste, including the development and construction of projects based on the REnescience technology, a technology that separates waste into fractions, enabling recycling and energy generation from organic material.	✓ Technical modifications that enable the burning of biomass do not exclude the use of coal. Contingent on to the credible company goal to phase out coal by 2023, these investments are allocated a medium to dark green shading.

Energy storage, smart grid and other energy solutions	Investments will cover storing of energy, power hub systems, installing smart meters with consumers and other investments accommodating the build-out of green energy production or reduces energy demand.	Dark Green ✓ Smart grids are a necessary technology to manage and increase the share of intermittent and decentralized renewable energy.

Table 2. Eligible project categories

Strengths

Growth in offshore wind

Ørsted will use green bond proceeds to continue the company's transition towards offshore wind production. The company is already the global leader in installed offshore wind capacity and has adopted a goal to reach 11-12 GW 2025, which would be more than a threefold increase compared to 2016. Ørsted aims to use at least 75% of green bond proceeds on offshore wind investments. According to the issuer, the risk assessment of offshore wind projects includes the risks stemming from future climate change impacts, such as more frequent storms or changes in wind patterns.

Clear date to exit coal

Ørsted has publicly committed itself to phase out the use of coal in its combined power and heat plants by 2023. Replacing coal with sustainable biomass is enabling the company's goal to reduce CO_2 emission intensity of its heat and power operations by 96% compared to 2016. The emissions intensity Ørsted aims to reach is 20g CO_2e/kWh. This value is far lower than the European average grid factor.

Certification regime for the sustainable sourcing of biomass

Ørsted has developed a program for what constitutes sustainable biomass, the DONG Energy Programme for Sustainable Biomass Sourcing. This framework is supposed to safeguard that the procurement of biomass is in accordance with the Danish Industry Agreement On Sustainable Wooden Biomass, a private sector initiative in lieu of legislation which currently does not exist in Denmark. The company uses independent auditors to certify that biomass suppliers operate in accordance with its programme. Ørsted's understanding of sustainability encompasses the entire value chain of biomass, including emissions from transport. Taking these sustainability criteria into account, the switch from coal to biomass has cut the CO_2 emissions from the power and heat plants significantly and in excess of current EU recommendations, the issuer informed CICERO. The issuer informed CICERO that between 90 and 95 % of biomass are woodchips and wood pellets. The remaining share of biomass consists of residual waste, such as straw, sunflower husk pellets, and cocoa shells from a nearby chocolate production plant.

Weaknesses

There are no apparent weaknesses in the framework.

Pitfalls

Technically, plants could be run on coal also after the conversion to biomass

The technical modifications on Ørsted's heat and power plants follow the strategy to replace coal with biomass. However, only parts of the modifications are exclusively for the use of biomass, such as the construction of silos for dry storage of wood pellets. Other modifications, such as to the pulverization process, enable the burning of biomass, but they do not alter the technical possibilities to burn coal.

The transition from coal to biomass is first and foremost a policy decision. Neither the business-case nor the technical modifications financed with green bond proceeds prevent Ørsted from using coal. From a technological perspective, the modified plants would be a transition technology towards a zero emission infrastructure. However, Ørsted has clearly communicated its goal to phase out coal and to cut the emission intensity of its heat and power operations significantly. These goals are embedded in a larger context where the company has assumed global leadership in installed offshore wind capacity and sold its upstream oil and gas business. Due to this bigger picture and the concrete goals, CICERO allocates a medium to dark green shading to these investments.

Environmental overview of supply chain could be strengthened

CICERO is encouraged to learn about the focus on local environmental impacts and the requirements Ørsted is putting on sub-contractors. However, including the CO_2 footprint of a sub-contractor into the policies and requirements that sub-contractors operate under, as well as reporting on these emissions, would strengthen the framework further. Offshore wind parks involve long construction periods and require large vessels.

Appendix: About CICERO

CICERO Center for International Climate Research is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international climate cooperation. We collaborate with top researchers from around the world and publish in recognized international journals, reports, books and periodicals. CICERO has garnered particular attention for its work on the effects of manmade emissions on the climate and the formulation of international agreements and has played an active role in the UN's IPCC since 1995.

CICERO is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO received a Green Bond Award from Climate Bonds Initiative for being the biggest second opinion provider in 2016 and from Environmental Finance for being the best external review provider (2017).

CICERO Second Opinions are graded dark green, medium green and light green to offer investors better insight in the environmental quality of green bonds. The shading, introduced in spring 2015, reflects the climate and environmental ambitions of the bonds in the light of the transition to a low-carbon society.

CICERO works with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions. Led by CICERO, ENSO is comprised of trusted 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). ENSO operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

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