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IJsbeer Energie Green Power B.V. ("IJsbeer") Green Bond Second Opinion

August 14, 2020

IJsbeer Energie Green Power B.V. ("IJsbeer") owns and operates a 12.5 MW renewable combined heat and power (CHP) facility, commissioned in 2010, in Steenwijk, The Netherlands**.** IJsbeer's green bond framework is directed at its underlying project, Project Ice Block, which will use circular economy as a guiding principle to retrofit the existing CHP facility to increase energy utilization of the facility from 25% to 90%. The project is a collaboration between IJsbeer and Kvitebjørn Energy AS /Daimyo, a Norwegian industrial investment company.

The framework will finance technologies and assets associated with retrofitting the existing CHP facility to include the production of pallet blocks and hot water, in addition to existing renewable energy generation. Biomass for the plant and wood for the pallet blocks will be based on waste wood, which is locally sourced. Water for the hot water production will be sourced either from the local canal or a drilled well on the IJsbeer Energie premises, and no drinking water will be used. IJsbeer expects to be able to electrify all of its equipment ahead of start of production and excludes financing of new fossil fuel based equipment. We note, however, that other equipment in the project's production line that is not financed by the framework may include synthetic diesel fuel.

Project Ice Block implements a commendable holistic approach to sustainability that considers its entire supply chain. IJsbeer will conduct regular and comprehensive reporting on relevant aspects of its activities. We note, however, that this reporting does not currently include CO_2 emissions from the CHP plant nor life-cycle emissions from pallet block production. Furthermore, the project does not yet consider future retrofitting of the CHP with carbon capture and storage technology. Additionally, the methodology for project selection under the framework remains unclear. The investor reports will include a description of the methodology for calculations, and will address potential double counting from government subsidies included in the Dutch green bond program.

Based on the overall assessment of the projects that will be financed under this framework, and governance and transparency considerations, IJsbeer's green bond framework receives a **CICERO Dark Green** shading and a governance score of **Good**. In order to improve the framework, CICERO Green suggests incorporating plans to report on life-cycle emissions as well as strategizing for the implementation of carbon capture and storage technologies.

SHADES OF GREEN

Based on our review, we rate the IJsbeer'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 IJsbeer'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 August 2020**.** This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Expressing concerns with 'shades of green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green	Examples
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.	Wind energy projects with a strong governance structure that integrates environmental concerns
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.	Bridging technologies such as plug-in hybrid buses
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.	Efficiency investments for fossil fuel technologies where clean alternatives are not available
Brown is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.	New infrastructure for coal

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

2 Brief description of IJsbeer Energie Green Power B.V.'s green bond framework and related policies

IJsbeer Energie Green Power B.V. ("IJsbeer") owns and operates a 12.5 MW renewable combined heat and power (CHP) facility, commissioned in 2010, in Steenwijk, The Netherlands. IJsbeer is part of the Norwegian energy group, Kvitebjørn Energy AS, which also owns and operates a 25 MW waste-to-energy facility in Fredrikstad and Tromsø, including a district heating system, and a 275 GWh energy recovery plant in Salten, Norway.

IJsbeer's green bond framework is directed at its underlying project, Project Ice Block, which is a collaboration between IJsbeer and Kvitebjørn Energy AS /Daimyo, a Norwegian industrial investment company that invests in sustainable industry and real estate including in renewable energy, recycling and aquaculture. The project will retrofit the CHP plant to increase usage of surplus heat from the CHP plant from 25% to ~90%, using circular economy as a guiding principle. Thus, in addition to the producing green electricity, the CHP plant will use the surplus heat and electricity to produce three end-products: both single- and multi- use pallet blocks (at a 50:50 share) from the waste wood chips, and hot water for sustainable weed control, heating swimming pools and other cleaning purposes. The system will enable IJsbeer to produce 100,750m^3 of pallet blocks per year within a global market of 2 million m^3/year. The project has already been granted an SDE+ subsidy of EUR 22.3 million, which is a scheme identified as an eligible expenditure under Netherlands' sovereign green bond framework.

Environmental Strategies and Policies

IJsbeer recognises Dutch climate goals and its role in achieving increased renewable energy generation and carbon emissions reductions. The CHP facility currently produces green electricity for approximately 1/3 of total households in the Steenwijkerland municipality, and contributes 8% to the municipal and national climate goals of 14% renewable energy generation in 2020. The facility also replaces natural gas heating with net-zero carbon heating of hot water for sustainable weed control, rapid heating of swimming pools and for other cleaning purposes, e.g., trucks and abattoirs. In 2019, IJsbeer sold 6 million liters of hot water mostly for use in weed control and a small amount for heating swimming pools. Production capacity for hot water is expected to increase from 6000 liters per hour to 25000 liters per hour after the implementation of the project.

The company aims to maximise energy efficiency and to reduce its carbon footprint as much as possible through utilizing renewable electricity and heat in a circular economy approach. Since IJsbeer is a renewable biomass plant, they expect emissions to be net-zero and therefore do not report on emissions arising from the plant and do not have specific emission reduction targets. They have stated they will look into carbon capture and storage once the project is up and running.

IJsbeer expects to contribute to reduced CO_2 emissions in Europe through their alternative technology that will reduce the deforestation for virgin wood in pallet blocks, as well as the fossil fuel energy that is used for virgin wood drying and pallet block production. IJsbeer's activities in hot water production is also expected to reduce CO_2 emissions as other hot water weed control equipment as well as heating of swimming pools is often fueled by natural gas. IJsbeer plans to use current European emissions as a baseline to determine their CO_2 emissions reduction contribution once the facility is running. They will publish a sustainability report, checked by an external

verifier, to indicate progress and emissions. IJsbeer has not conducted climate scenario analysis, but expects the project to be climate resilient, given its focus on circular economy and diversified local sourcing.

Project Ice Block has a five-pronged sustainability approach, which includes:

1. optimizing the use of the whole available energy spectrum (including low value energy at below 80 degrees Celsius) from the biomass plant,
2. implementing circular economy principles for pallet block production, including maximizing recycling and reuse of pallet blocks,
3. supplying pesticide-free weed control using water heated from the low value energy,
4. reducing waste as much as possible by screening for undesirable materials before incineration (gravel, sand, over- and under-sized wood),
5. and ensuring local sourcing and distribution of products, enabled by the facility's central location. Biomass is sourced from local pruning work and local tree and forest maintenance. All biomass is required to comply with NTA 8003 and NTA 8080 standards, and is guaranteed from seven local suppliers. IJsbeer has an advantage in being located in an area with steady year-round supply. This also includes combining truck loads to optimize logistics.

Each year, the CHP is subject to an emission test of SO_2, NO_x and dust, which is carried out by an independent third party notified body. The incineration process is also certified with a SCIOS certification every 2 years. According to the issuer, the incinerating process in the CHP facility is clean and performs better than Dutch national requirements on all levels: 88% lower for SO_2 requirements, 10% lower than NOx requirements, and dust (particulate matter) emitted from the facility is negligible. There are no heavy chemicals used in any of IJsbeer's activities, and SNCR-systems have been installed to reduce NOx emissions into the atmosphere.

IJsbeer intends to finance only electric equipment as part of the green bond financing and additionally plans to electrify all current fossil fuel based construction and lift equipment in the future. They recognise that this may not be feasible in the short term, and will therefore potentially use GTL diesel, which has been proven to significantly reduce CO, NOx and SO_2 emissions,[1] as an environmentally-friendly intermediary until all equipment becomes available as electric. They also expect to increase their hot water production for weed control to supply year-round demand and have already started expanding to providing hot water for other purposes, replacing natural gas heating for rapid heating of swimming pools and cleaning of trucks and abattoirs.

Project Ice Block has an emissions permit granted by Aerius, which is part of the Dutch Institute for Public Health and the Environment,[2] as well as a permit granted by the Dutch environmental laws "Activiteitenbesluit Milieubeheer" and the Nature Reserve Law (WnB), which verifies that the project complies with the National Nature Conservation Law.[3] Project Ice Block has green certificates from the Dutch national green certification agency, CertiQ. This currently encompasses both electricity and water produced by the CHP, and will also cover the heat used for block production.

Use of proceeds

The net proceeds of the green bonds issued by IJsbeer, or any of the wholly-owned subsidiaries, will be used to finance or re-finance eligible projects that have been evaluated and selected in accordance to the framework. Close to 100% of funding will be new financing as the use of funds related to existing equipment will target modifications or upgrades. For refinancing, IJsbeer will aim to only refinance projects with a look-back period of maximum 1 year from the date of issuance.

[1] https://www.sciencedirect.com/science/article/pii/S1110016816301648
[2] https://www.aerius.nl/en
[3] https://www.government.nl/topics/nature-and-biodiversity/legislation-protecting-nature-in-the-netherlands

All eligible projects are associated with Project Ice Block, for which IJsbeer has identified the ICMA Green Bond Principles category: Eco-efficient and/or circular economy adapted products, production technologies and processes. Eligible projects may be asset or non-asset related expenditures related to the three production lines, including, but not limited to, pallet block and feedstock production line facilities, energy and hot water production equipment, material intake and other related equipment, construction costs, project management and advisory, and infrastructure and civil works. Administration costs are expected to make up 3-5% of total proceeds.

Funding will be used solely for specific projects outlined in Table 1, and not any additional infrastructure that may be associated with the projects. IJsbeer will not finance fossil fuel infrastructure (e.g., trucks, fossil fuel heating and burners) for production, transportation and distribution of pallet blocks or hot water. IJsbeer expects to be able to electrify 100% of its material handling equipment before start of production.

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.

The use of proceeds have been determined in advance, and there is minimal additional project selection. Projects have been selected based on energy efficiency and reparability. The issuance of green bonds will be governed by the criteria laid out in the framework, and will be focused on financing Project Ice Block. The selection of projects has been incorporated in the project's overall feasibility and sustainability assessment. IJsbeer will rely on its experience in operating energy businesses when executing this project.

IJsbeer has made an effort to engage the local community throughout the project design and development phase, in an effort to mitigate controversies in the project.

Management of proceeds

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

IJsbeer will establish a Green Bond Register to monitor the eligible projects and the allocation of net proceeds from green bonds to eligible projects. Proceeds will be allocated to individual disbursements. IJsbeer will build up and maintain an aggregate amount of eligible projects in the Green Bond Register that is at least equal to the aggregate net proceeds of all outstanding IJsbeer green bonds.

Unallocated proceeds will be held in accordance with IJsbeer's liquidity management policy. IJsbeer has informed us that this policy does not include environmental considerations. A portion of the proceeds may also be used to be set aside in an escrow like account to ensure sufficient liquidity to cover for possible project overruns. The company informed us that these proceeds would be held in cash and will not be invested.

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.

After construction of the project, IJsbeer will publicly disclose both impact and allocation reporting on an annual basis. Reporting will be conducted by IJsbeer Management, and will seek to align with the latest standards and practices by ICMA and the guidelines in the Nordic Public Sector Issuer's Position Paper on Green Bond Impact Reporting.

Allocation reporting will comprise a list of all eligible projects on a project-by-project basis including funding with amounts allocated, detailed descriptions and case studies of selected Eligible Projects financed, and amounts invested in each category as well as the relative share of new financing vs refinancing.

Impact reporting will vary based on category and may display actual or estimated (depending on feasibility) environmental impact through the following metrics:

- Circular Economy Adapted Production Technologies
  - Amount of circular economy blocks produced (m^3)
- Circular Economy Adapted Recycling Processes
  - Waste wood recycled (tonnes)
- Circular Economy Adapted Products
  - Hot water produced replacing pesticides (tonnes)
- Renewable Energy
  - Annual renewable energy production (MWh)
  - Annual greenhouse gas emissions reduced/avoided (tCO_2e).

IJsbeer has further specified that impact reporting will also include a breakdown of volume and type of virgin wood chips used.

Where feasible, specific details on methodology, baselines and assumptions used in impact calculations will also be included. IJsbeer has stated that they are aware of the possible double-counting with the SDE+ subsidy that they have received and have taken measures to improve transparency on this in their reporting.

No external review of the reporting is currently planned, however IJsbeer is exploring options to obtain a Third Party Audit to the extent feasible.

3 Assessment of IJsbeer Energie Green Power B.V.'s green bond framework and policies

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

Eligible projects under the IJsbeer'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
Eco-efficient and/or circular economy adapted products, production technologies and processes		**Dark Green**
	Circular Economy Adapted Production Technologies Proceeds are planned for modifications and adaptation of the existing CHP facility (which runs entirely on locally sourced biomass) to align and connect with the pallet block and hot water production (heat take-off unit). Investments include, but are not limited to, belt dryers, extrusion presses, and robotic packaging and storage systems.	✓ IJsbeer has specified feedstock is limited to wood chips, which require less processing than wood pellets. The facility can handle a broad range of wood incl. pine tree, fruit tree, beech, oak. ✓ The supply of feedstock will likely not lead to an increase in wood harvesting since most of the wood received is in the form of stumps, branches or has many knots and is unsuitable for other purposes, e.g., producing beams and planks, and would therefore otherwise go to waste.
	Circular Economy Adapted Products The production of energy from the CHP and production of pallet blocks results in excess heat and hot water. Steam from this hot water production can be used as a	✓ Both single and multi-use pallet blocks are designed for the specific needs of the customers, and often end up with similar carbon footprints, as both can be reused multiple times.

	substitute for pesticides in weed-control, thereby reducing the negative impact on soil quality and biodiversity. Investments include, but are not limited to, high-capacity heat exchangers, piping and hot water storage tanks.	✓ To minimize waste, the CHP screens out materials that cannot be incinerated, e.g., over- or under-sized wood, sand, gravel, stones. IJsbeer has informed us that misshapen wood is used in pallet block production and sand, gravel and stones are reclaimed by the biomass supplier. ✓ IJsbeer does not currently report on life-cycle emissions. ✓ The CHP is entirely self-sufficient through energy supplied by its own 2.4MW steam turbine. However, during the annual shutdown for preventive maintenance, a small amount of electricity will need to be supplied from the grid. Cooling of the incineration system can be powered by the UPS battery. ✓ IJsbeer has informed CICERO Green that the pallet block production line will include a laboratory where they will test e.g., water resistance and nail longevity, and adjust the product accordingly. ✓ For weed control, hot water is considered to be the most environmentally-friendly alternative. Since pesticides for weed control were banned in the Netherlands, other available practices include brushing, and burning. ✓ Water for hot water production will be non-potable and sourced from local canals. ✓ Weed control is only used in paved areas.
	Circular Economy Adapted Recycling Processes The pallet block production lines will be able to run on recycled waste-wood, including B-wood. This increases the overall circularity of the project and reduces the use of virgin wood. Investments include, but are not limited to, wood preparation plants, and wood intake systems.	**Dark Green** ✓ Pallet blocks can be recycled almost endlessly, as long as the composition of the pallet block retains a high level of fibre. ✓ IJsbeer has informed us that waste wood is sourced from local waste collectors, typically from local housing and infrastructure renovation projects and old furniture. There is some risk that this may create an incentive structure for wasting instead of repairing old furniture. ✓ Grade B wood refers to clean recycled wood that is produced from pallets and other secondary manufacture, as well as construction and demolition waste.
	Renewable Energy and Energy Efficiencies	**Dark Green**

	The existing CHP, which will provide all required energy for Project Ice Block, is fuelled by renewable and locally available virgin wood, arising from forest and landscape maintenance. The CHP has been running for several years production renewable energy, which is sold to the Dutch electricity grid. Proceeds used for modifying the CHP will boost the overall efficiency and allow the production facilities to run on the renewable electricity generated. Investments include, but may not be limited to, heat take-off equipment and overall modifications.	✓ Biomass CHP facilities are a necessary part of the transition to a low-carbon future. However, it is often difficult to ensure emissions are net-zero. Combining biomass with carbon capture technologies would ensure the system is a net carbon sink. ✓ IJsbeer has specified they will not monitor or report CO_2 emissions from the CHP facility, as aligned with Dutch law. ✓ Biomass for the CHP is locally sourced from 7 different local suppliers and externally assured to be compliant with the environmental standards: NTA 8003 and NTA 8080.

Table 1. Eligible project categories

Background

The Netherlands has committed to reducing greenhouse gas emissions by 25% by 2020, 49% by 2030, compared to 1990 levels, and by 95% by 2050, and has drawn up a Climate Plan, the National Energy and Climate Plan and the National Climate Agreement to achieve these goals.[4] According to the IEA, the Netherlands decreased its emissions to the 1990 level of 148MtCO_2 in 2018 and is on a downward trajectory.[5] Meanwhile, electricity consumption has increased by 49% since 1990. The primary focus of the Dutch climate plan is to decarbonize the energy system, to reach 27% by 2030, through the expansion of wind and solar generating capacity. Between 2000-2018, the share of renewable energy has risen from 1.6% to 7.4%, and 61% of total renewable energy in 2018 came from biomass, while 23% came from wind and 8% from solar.[6] Energy from biomass is expected to rise from 3 petajoules in 2018 to 25 petajoules in 2020, and then to remain fairly stable until 2030.

The Dutch National Energy and Climate Plan (NECP) recognises the need for biomass and biofuel and ensuring that this biomass comes from sustainable sources. The Plan also mentions the risk that biomass stock will become scarce on a global level in the long term, although Project Ice Block's use of waste wood for CHP feedstock is unlikely to become scarce, since IJsbeer has stated waste wood from local forest management and landscaping will always be available. Biomass is also a key part of improving the adaptability and flexibility of an increasingly decarbonised electricity grid.

The implementation of circular economy principles will also make a significant contribution to the fulfilment of the Climate Agreement and reduce CO_2 emissions in the supply chain by decreasing consumption of primary raw materials, reducing the incineration and dumping of waste, reusing CO_2 as a raw material and providing sufficient renewable raw materials for the energy and climate transition. According to the NECP, the Netherlands plans to be a circular entity by 2050, with an intermediary target of 50% reduction in primary raw materials consumption by 2030. Biomass and bio-based products play an important part in this transition through their unique capability to be repaired, reused and recycled.

[4] https://www.government.nl/topics/climate-change/climate-policy
[5] https://www.iea.org/countries/the-netherlands
[6] https://ec.europa.eu/energy/sites/ener/files/documents/nl_final_necp_main_en.pdf

EU Taxonomy

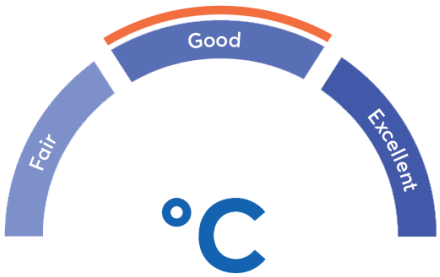
In 2020, the EU Taxonomy was released in a multi-lateral effort to standardise thresholds and metrics to aid the transition. The Taxonomy provides signposting for investors and bond issuers to aid in their decision-making and project selection processes. The relevant thresholds in the EU Taxonomy for IJsbeer's Project Ice Block are under the Cogeneration of Heat/Cool and Power from Bioenergy (Biomass, Biogas, Biofuels) category. This includes ensuring that facilities operate at 80% GHG emissions reduction from the relative fossil fuel comparator, increasing to 100% by 2050. Feedstocks must be listed in the advanced feedstock listed in Part A of Annex IX of Directive (EU) 2018/2001. Do-No-Significant-Harm (DNSH) criteria include ensuring water quality risks are identified and managed, waste management measures are implemented according to circular economy principles, emissions to air, water and soil are prevented/minimized, and that an Environmental Impact Assessment is completed.

IJsbeer cannot currently confirm that it will meet all EU Taxonomy thresholds and DNSH criteria. However it receives a yearly assurance report to prove sustainable sourcing of wood chips, and their receipt of the government SDE+ subsidy also indicates they would likely meet the EU Directive mentioned in the Taxonomy. .

Governance Assessment

Four aspects are studied when assessing IJsbeer'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.

IJsbeer has a commendable sustainability approach that robustly addresses environmental issues across the entire supply chain, which will contribute to GHG emissions reductions and implement circular economy for pallet block production. In alignment with Dutch law, since the biomass CHP is considered a renewable energy source, they do not monitor or report CO_2 emissions from the plant nor life-cycle emissions from the pallet block production. The project also does not have emissions reductions targets. Project selection has already been undertaken and is subject to multiple environmental certifications and permits. IJsbeer and Kvitebjørn AS/ Daimyo rely on their experience within project financing for renewable energy installations for project selection and implementation. Project Ice Block has engaged in dialogue with the local community throughout the project design phase. While IJsbeer has specified that performance indicators for impact reporting are not yet definite, reporting will likely be based on multiple key metrics, although we note the omission of life-cycle emissions of pallet blocks. The methodology for calculating impact reporting is transparent and takes into account the potential double counting of impact arising from their receipt of subsidy from the government. Reporting will not be externally reviewed.



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

Strengths

IJsbeer's planned implementation of a holistic approach towards sustainability is a commendable effort at incorporating and addressing multiple environmental issues under the same project. The focus on local sourcing and distribution, enabled by the plant's central location in a densely populated area, reduces carbon emissions

from transportation and guarantees feedstock and raw material supply. IJsbeer's consistent engagement with the local community throughout the project design process also ensures that the project is beneficial to, and aligned with the vision of, the community. Biomass plants comprise a significant share of Netherlands' renewable energy mix, and this project may serve as inspiration for other CHP facilities to optimize their energy utilization while implementing a circular economy approach.

The project is well aligned with Netherlands' national climate goals, and will contribute not only to its renewable energy trajectory but also to its vision to become a fully circular economy by 2050. The supply of renewable alternative technologies for pallet block and hot water production, and wood drying etc. directly replaces natural gas powered technologies that would otherwise be used. This leads to a net reduction in carbon dioxide emissions in the Netherlands.

The use of waste and unusable wood for CHP feedstock ensures a stable supply and minimizes the risk that additional wood harvesting occurs. This is important given the global projections that biomass stocks will become scarce. It also mitigates the risk of depleting Netherland's carbon sink if virgin wood had been harvested from valuable forests. IJsbeer also emphasises the need for lifetime extension and repair of the pallet blocks to reduce carbon emissions. This is achieved through cooperation with pallet manufacturers that also conduct repairs. In the future, IJsbeer is exploring the possibility of adding in greenhouse waste, e.g., fibrous tomato plants as well as producing window and door frames in addition to pallet blocks.

IJsbeer complies with multiple environmental standards and submits to regular certifications and checks, in which they perform significantly better than the required thresholds (88% better in SO_2 levels and negligible levels of dust and particulate matter). In addition, they require that biomass for the CHP feedstock be certified by NTA 8003 and NTA 8080, which ensures the sustainability of the biomass. Concerns for loss of biodiversity and deforestation are mitigated, as they have received a permit from the WnB, which certifies that activities are compliant with the national biodiversity and nature conservation laws.

Weaknesses

We find no material weaknesses in IJsbeer's green bond framework.

Pitfalls

While IJsbeer has stated a commitment to order only electric equipment under this framework, and has informed us that fossil fuel infrastructure and equipment has been excluded from financing, they also recognise electrification may not be feasible in the near term and have suggested other intermediary solutions including the use of synthetic GTL diesel for equipment. IJsbeer has confirmed that the purchase of new GTL-fueled equipment will not be eligible for financing under this framework, however we recommend IJsbeer conduct life cycle assessments of each piece of equipment to minimize emissions (e.g., CO_2, CO, NO_x, SO_2 and dust).

IJsbeer reports neither on its CO_2 emissions arising from the plant, nor on the life-cycle emissions of the pallet blocks, despite these indicators' relevance in assessing circular economy impact. IJsbeer has stated they are open to the possibility of monitoring life-cycle emissions but has cited difficulties in the practicalities of conducting such reporting. IJsbeer has indicated they are aware of what steps should be taken, and CICERO Green encourages the company to implement these steps to ensure robust impact reporting. In addition, an incorporation of quantified emissions reductions targets would enable a more targeted approach towards reducing CO_2 emissions, and would better facilitate an increase in ambition over time. Recording CO_2 emissions would also facilitate strategic planning for future implementation of carbon capture technologies.

Biomass CHPs are an important aspect of a decarbonized future and IJsbeer has qualitatively estimated its contribution to GHG emissions reductions, which includes ensuring local sourcing that does not contribute to additional wood harvesting, and replacing natural gas for renewable energy in pallet block and hot water production. However, there is an opportunity to contribute in a more targeted and significant way to a decarbonized future by implementing carbon capture and storage technologies. This will enable IJsbeer's facility to become a quantifiable net carbon sink. IJsbeer has stated it is open to this possibility, but has not yet started strategizing for its implementation.

The production of both single- and multi-use pallet blocks is useful to cater to the needs of customers and thus optimize usage of pallets, however there is a risk that one type is more carbon intensive than the other. IJsbeer estimates that both types will have similar footprints given variations in how pallet blocks are used and re-usage rates for both single- and multi- use blocks. Once production is underway, IJsbeer may consider launching an investigation into the relative carbon footprint of the pallet blocks to quantitatively determine if one is less carbon-intensive than the other. IJsbeer may also consider entering a dialogue with its customers to fully understand their needs, and ensure customers are aligned with IJsbeer's circular economy vision.

Potential rebound effects may arise in the waste wood collection as well as feedstock supply, whereby increased wood collection may incentivize further waste or further harvesting/landscaping of trees beyond what is necessary. IJsbeer has assured CICERO Green that the use of waste wood in producing pallet blocks would not incentivize further waste since the wood will come mostly from building renovations that are likely to continue far into the future, and that feedstock supply will be based on otherwise unusable wood. Nevertheless, we would recommend that these indicators be monitored to mitigate rebound effects.

Appendix 1:
Referenced Documents List

Document Number	Document Name	Description
1	IJsbeer Energie. Green Bond Framework. August 2020	Green Bond Framework
2	Information Memorandum – Project ICE BLOCK. August 2019.	Details on Project Ice Block and logistics, sourcing, financials, key risks etc.
3	IJsbeer Energie. Project Ice Block Teaser Presentation. May 2020.	Further details on Project Ice Block providing project and market overview.

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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).