Green Bond Framework

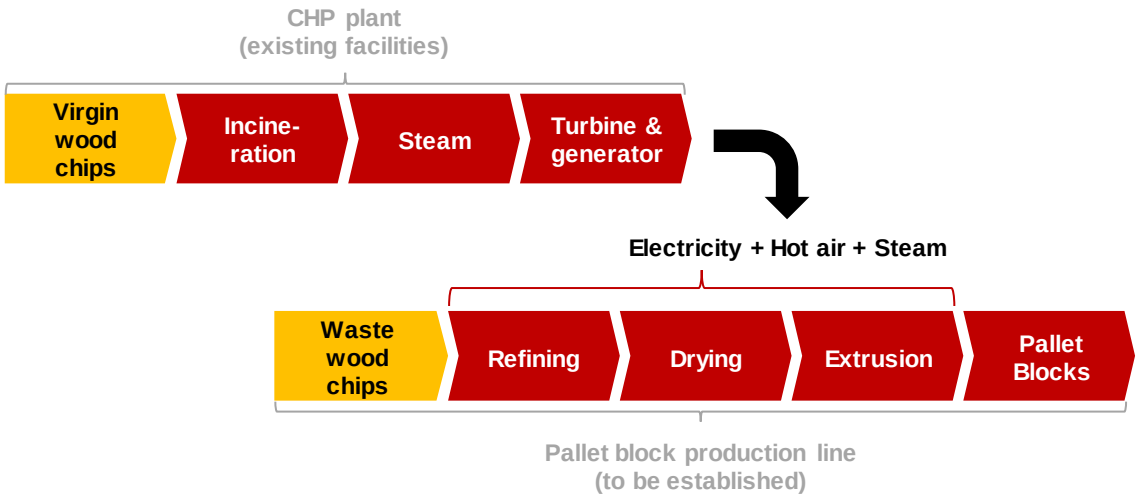
August 2020

1. Introduction

1.1 About IJsbeer Energie and Project Ice Block

IJsbeer Energie Europa (IJEE) owns and operates a 12,5 MW renewable combined heat and power (CHP) facility in Steenwijk, the Netherlands. The company produce thermal heat that is transformed to green electricity by a 2,4 MWe turbine and hot water for sustainable weed control as an alternative to pesticides or burning (using fossil fuels). There is surplus energy (steam, hot air and power), available space, and an already granted SDE+ subsidy of EUR 22.3m (the same scheme is defined as eligible expenditures in the Green bonds issued by the Netherlands), and as such the company has developed Project Ice Block.

Figure 1.1: Simplified overview of operations and interface between the CHP and the pallet block production line



Project Ice Block is retrofitting the plant for production of pallet blocs based on recycled word and surplus green energy. Pallet blocs are the spacers used in pallet production. As production of recycled pallet blocs requires steam, hot air and power it is an ideal fit with the CHP. Hot air is used to dry waste wood, steam is used in the extrusion process and power to run the whole plant. The CHP produces steam from burning locally sourced virgin wood chips, mainly obtained from forest maintenance and roadside maintenance. B-wood (waste wood) will be used as a raw material in the pallet blocks. Thereby waste wood is turned into a new circular product. In addition the bottom ash from the CHP is used as input material for concrete products increasing the circular economy of the project.

Figure 1.2: Pallet blocks illustration

1.2 Circular economy is at the core of Project Ice Block

Sustainability runs at the core of Project Ice Block and can be divided into four groups; energy used for pallet bloc production, materials sourced, recyclability of the end-and by-products and an overall focus CO2 neutrality. To this extent IJEE believes Project Ice Block to be close to fully circular.

Our philosophy is to that sustainability is key to financial success. By being a low-cost producer we also consume less than our competitors and as such we are more sustainable than others:

1) The block production lines are constructed to re-use rejected (off spec) pallet blocs.
2) Pallets with our blocs can be used several times and be repaired – at end of life we plan to take the whole pallet back and reuse it as new pallet blocks
3) All (lift)trucks and wheel loaders for internal movement are planned to be electrical and will be charged with our own green electricity
4) Oversized CHP feedstock will be used in pallet block production, hence there will be no waste from CHP fuelling.
5) Ashes arising after incineration will be reused as binder in concrete and asphalt.
6) We will use proceeds to build a bigger and better equipped work shop for repair of broken and worn process equipment and as such reuse more and consume less
7) With excellent preventive maintenance procedures we expect to make the plant and equipment have longevity at top of the class
8) Surplus heat from the CHP is used for building heating of 3 properties

1.2.1 Energy used for production

Production of pallet blocs is energy intensive. All moisture in the wood chips has to be removed to make the bloc stable, regardless if either virgin or recycled wood is used. However waste wood is normally dryer then virgin wood and therefore consumes less energy to reach desired moisture rates. The extrusion presses use steam to maintain production speed at competitive levels. The waste wood pre-treatment, feed-in system, process equipment, trucks and building all consumes electricity. IJEE expects that by executing Project Ice Block the utilisation of the energy generated in IJEE's existing CHP will increase from ~25% to ~90%. All of the thermal heat and electricity used for the production of pallets will come from the CHP facility. This represents an additional sustainable benefit of the project as the production of pallets is typically based on boilers running on fossil fuels to produce the hot air and steam while they source the electricity from the grid, which also contains a significant component of fossil based fuels.

1.2.2 Materials sourced

IJEE is making the investments enabling us to recycle and use waste wood as new raw material in the pallet blocks. Competitors typically use virgin wood. Locally available biomass is to be used as fuel in the CHP and waste wood is to be used as raw material for the pallet blocks - both being sustainable and environmentally friendly. As both the wood chips and waste wood are intended to be sourced locally, also a major saving in logistics is gained here. The CHP is located in a region where wood chips are widely available and furthermore The Netherlands is a densely populated country, providing IJEE access to a large market of locally available waste wood. A significant share of the current waste wood streams are currently exported to Germany as well as Belgium and are therefore transported over long distances. Furthermore, a lot of this waste wood is incinerated and thereby not considered a circular product.

1.2.3 Recyclability and re-use by-products

IJEE is making the investments necessary to utilise the residual hot water for weed-control. Most competitors do not utilise this low energy content “residue”. Also, the pallet blocks are to be supplied primarily to the Dutch and neighbouring markets, thereby limiting CO2 footprint of transportation as we can target the local market. Furthermore, pallet blocks are recyclable at the end of their life. The old blocks (typically in combination with the other pallet components) can be shredded (into small chips) into new feedstock to be reused for the production of new pallets again, thereby creating a circular product, which in the case of IJEE, is even produced with green energy.

1.2.4 CO2 neutral contribution in entire value chain

From several angles Project Ice Block contributes to CO2 reduction. Not only with its renewable energy, but also in the entire logistic supply chain towards and from the company. The CHP is located in an area with high availability of woodchips. Feedstock for the CHP can be supplied with limited transporting distances. Same for the supplied waste wood. The densely populated area ensures high availability of waste wood within limited distances. As The Netherlands is a transporting nation, it also possess a high quality infrastructure and therefore extremely efficient transport network in to Europe (both roads and charters). Also a high amount of pallet manufacturers are nearby. And last but not least by using waste wood instead of virgin wood for pallet blocks much less heat/energy is needed as waste wood has a way lower moisture rate.

1.3 Green Bond Framework

This Green Bond Framework is based on the 2018 version of Green Bond Principles published by the International Capital Markets Association. It governs all wholly-owned subsidiaries of IJsbeer Energie Europa B.V and is principally intended to cover the issuance of Green Bonds to finance Project Ice Block.

2. Use of Proceeds

The net proceeds of the Green Bonds issued by IJEE, or any of the wholly-owned subsidiaries, will be used to finance or re-finance Eligible Projects in accordance with this Green Bond Framework. IJEE will endeavour to only include refinancing of Eligible Projects with a look-back period of maximum 1 year from the time of issuance.

2.1 Eligible Projects

Eligible Projects include both asset and non-asset related expenditures associated with Project Ice Block. The asset related expenditures include, but are not limited to, pallet block and feedstock production line facilities, energy and hot water production equipment, material intake and other related equipment. Non-asset related expenditures include, but are not limited to, construction costs, project management and advisory, and infrastructure and civil works. Additionally, 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. It is expected that the majority of the expenditures will go to financing physical assets and equipment.

Since the different expenditures all form part of the same overall project it is not feasible to categories them as belonging to one category or another. Further, IJEE believes that ‘circular economy’ is the category that best describes and encompass both the main and overall sustainability theme of the project. The sum of the investments is needed to execute this both green and circular project. For the sake of transparency, the description of the category has been mapped out to more detailed uses and objectives. A schematic outline of the expenditures for Project Ice Block has been included in the appendix at the end of this framework.

ICMA 2018 Green Bond Principles Categories	Description of the main uses and objectives	SDG mapping
Eco-efficient and/or circular economy adapted products, production technologies and processes	**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.* **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 mood. Investments include, but are not limited to, wood preparation plants, and wood intake systems.* **Circular Economy Adapted Products** *The production of energy from the CHP and production of pallet blocs result in excess heat and hot water. Steam from this hot water production can be used as a 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.* **Renewable Energy and Energy Efficiencies** *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.*	  

3. Selection of Projects

This framework sets out and governs the issuance of Green Bonds by IJEE, or any of its wholly-owned subsidiaries, with the initial and specific focus on financing Project Ice Block. Hence the selection of projects is inherently part of the project's overall feasibility and sustainability assessment.

When executing the project, IJEE will draw on the owner's extensive experience in operating energy businesses as well as executing large-scale greenfield and brownfield construction projects, such as within renewable energy generation and distribution, services and solutions related to the energy and offshore sector, as well as within real estate.

4. Management of Proceeds

IJEE will establish a Green Bond Register in relation to the Green Bonds issued for the purpose of monitoring the Eligible Projects and the allocation of the net proceeds from Green Bonds to Eligible Projects.

IJEE will over the duration of the outstanding Green Bonds 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 IJEE Green Bonds.

There may be periods when the total outstanding net proceeds of Green Bonds exceed the value of the Eligible Projects in the Green Bond Register. Any such portion will be held in accordance with IJEE's liquidity management policy.

The Green Bond Register will form the basis for the impact reporting.

5. Reporting

IJEE will annually publish a report on the allocation and impact of Green Bonds issued under this framework. Where relevant IJEE will seek to align the reporting with the latest standards and practices as identified by ICMA and the guidelines in the Nordic Public Sector Issuer's Position Paper on Green Bond Impact Reporting. The impact report will, to the extent feasible, also include a section methodology, baselines and assumptions used in impact calculations.

5.1 Allocations reporting

The allocation reporting will, to the extent feasible, include the following components:

- A list of all Eligible Projects funded including amounts allocated
- Detailed descriptions and case studies of selected Eligible Projects financed
- Amounts invested in each category as defined in the Use of Proceeds section and the relative share of new financing versus refinancing

5.2 Impact reporting

IJEE will strive to report on the actual environmental impact of the investments financed by the Green Bonds. If/when actual impact for some reason is not observable, or unreasonably difficult to source, estimated impact will be reported.

The impact indicators may vary with investment category, as defined in this Green Bond Framework. The impact metrics may include the following:

- Circular Economy Adapted Production Technologies
  - Amount of circular economy blocks produced (m3)
- 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 (tCO2e)

IJEE is aware that 'double counting' of impact is an important issue to investors, and the broader market. As such, the company will, to the best of abilities, endeavour to highlight areas where such double counting issues may arise, such as for instance in reporting on impact from assets receiving support/subsidies from other issuers that may count on such subsidies as Green proceeds/expenditures.

6. External Review

IJEE has engaged Cicero Shades of Green to act as an external verifier of this Green Bond Framework and the Eligible Projects. The Second Party Opinion is publicly available on IJEE's website. IJEE will look to obtain a Third Party Audit to the extent feasible.

Appendix: Outline of expenditures for Project Ice Block

CHP modification / Heat take-off

Hot water production assets for weed-control

Plot acquisitions

Infrastructure and civil works

Project management and advisory

Construction interests

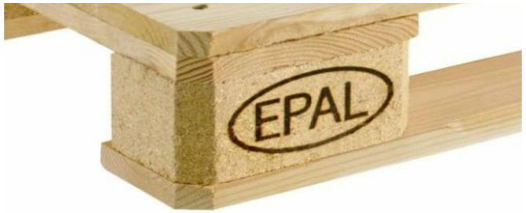
Contingency

Virgin wood intake

CHP plant (existing facilities)

Virgin wood chips → Incine-ration → Steam → Turbine & generator

Electricity + Hot air + Steam



Material Handling Equipment

Waste wood chips → Refining → Drying → Extrusion → Pallet Blocks

Pallet block production line (to be established)

Waste wood intake

Imal Pallet block production line