**Key Project Information & project Design Document (PDD)**

###### PUBLICATION DATE **29.06.2023** VERSION **v.1.5** RELATED SUPPORT

###### - [TEMPLATE GUIDE Key Project Information & Project Design Document](https://globalgoals.goldstandard.org/standards/TGuide-PreReview_V1.5-Project-Design-Document.pdf)

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### KEY PROJECT INFORMATION

|  |  |
| --- | --- |
| GS ID of Project | GS11356 |
| Title of Project | Fuel-Switch Project Deriving Carbon Assets from the Use of Non-Edible Raw Agriculture-Derived Oil System (NERADO System) To Replace Heavy Fuel Oil for Aluminium Dross Recycling in Malaysia |
| Time of First Submission Date | 08/09/2021 |
| Date of Design Certification | 31/03/2024 |
| Version number of the PDD | 1.6 |
| Completion date of version | 28/02/2024 |
| Project Developer | JTS Engineering Sdn Bhd |
| Project Representative | Climate Resources Exchange International Pte Ltd |
| Project Participants and any communities involved | Climate Resources Exchange International Pte Ltd |
| Host Country (ies) | Malaysia |
| Activity Requirements applied | [Community Service Activity](https://globalgoals.goldstandard.org/201-ar-community-services-activity-requirements/)  [Renewable Energy](https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/)  [Land-Use and Forests Activity Requirements](https://globalgoals.goldstandard.org/203-ar-luf-activity-requirements/)/Risks & Capacities  N/A |
| Scale of the project activity | Micro scale  Small Scale  Large Scale |
| Other Requirements applied | N/A |
| Methodology (ies) applied and version number | AMS.III.AS: Switch from fossil fuel to biomass in existing manufacturing facilities for non-energy applications, Version 02.0 |
| Product Requirements applied | GHG Emissions Reduction & Sequestration  Renewable Energy Label  N/A |
| Project Cycle: | Regular  Retroactive |

**Land-use & Forest Key Project Information[[1]](#footnote-1)**

N/A

**Table 1 – Estimated Sustainable Development Contributions**

|  |  |  |  |
| --- | --- | --- | --- |
| SUSTAINABLE DEVELOPMENT GOALS TARGETED | SDG IMPACT  (DEFINED IN B.6) | ESTIMATED ANNUAL AVERAGE | UNITS OR PRODUCTS |
| 13 Climate Action (mandatory) | Emissions Reductions | 1,692 | VERs |
| 11 Sustainable Cities and Communities | Decreased PPM | 3.5 | PPM |
| 8 Decent Work and Economic Growth | The number of males and females employed by the project | Total: 32  Females: 8  Males: 24 | Employees |

#### SECTION A. DESCRIPTION OF PROJECT

##### A.1 Purpose and general description of project

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The Fuel-Switch Project Deriving Carbon Assets from The Use of Non-Edible Raw Agriculture-Derived Oil System (Nerado System) to Replace Heavy Fuel Oil for Aluminium Dross Recycling in Malaysia (hereinafter referred to as the “**project activity**”) is a fuel switch project implemented by JTS Engineering Sdn Bhd (“**JTS**”), the leading pioneer in Aluminium Dross recycling in Malaysia and was the very first to obtain approval from the Malaysian Department of Environment for handling and recycling aluminium dross.

The project activity aims to address one of the issues JTS was looking at being its furnace fuel, which uses Heavy Fuel Oil (HFO) in its baseline scenario, a fuel typically derived from residues of petroleum catalytic cracking. As HFO is both a high carbon intensive fuel source as well as not sustainable in the long run seeing that it is derived from fossil fuels, JTS initiated a search for a more sustainable fuel that could produce the required amount of energy for the smelting process.

In the project activity, Non-Edible Raw Agriculture-Derived oils (NERADOs), which is commonly available in the local region and possesses a lower carbon potential, was selected as the alternative fuel source to be used during the aluminium smelting process. Through the switching from a high carbon intensive fuel source to a lower carbon intensive fuel source, emission reductions are able to be generated. As part of the fuel switch activity, a replacement of the fuel firing system in the existing plant was implemented to allow for the firing of the NERADOs fuel. The replaced fuel firing system would also have the capabilities of firing other kind of liquid fuels such as HFO and diesel fuel.

The project activity will be located within the host country of Malaysia, specifically Johor Bahru. The exact coordinates of the project activity will be further elaborated on in section A.2.



Figure 1: Geographical region of project activity.

Further to the project activity will directly contribute to the reduction of greenhouse gas emissions produced from the combustion of fossil fuel. Additionally, it will also contribute towards Malaysia’s objective to maximize its green industry and renewable energy potential in 2020. Other benefits of the project activity are as follows:

**Environmental well-being:**

* The project uses renewable fuels in place of non-renewable fuels, thereby reducing emissions into the atmosphere resulting in lower emissions to the surrounding environment and contributing on a regional and global level.

**Economic well-being:**

* Implementation of the project activity will result in employment opportunities for people involved with installation of the technologies.
* Sales of carbon credits generated by the project activity will result in increased foreign direct investment.
* Encourage industrial development in the region and generate economic growth. It will provide for business opportunities for local stakeholders such as suppliers, manufacturers, contractors etc.

**Social well-being:**

* The project activity uses renewable fuel which does not emit GHGs into the atmosphere. This reduces the adverse impact of GHG emissions leading to a cleaner environment and with reduced soot and smog production, better working conditions in the plant premises and improved local environment of the people living in proximity.

**Technological well-being:**

* The project activity will use environmentally friendly, inexhaustible, and clean fuels.
* It will create opportunities for skill improvement and technology penetration in the Host Party.
  + 1. Eligibility of the project under Gold Standard

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Table 2: Gold Standard eligibility assessment.

|  |  |  |
| --- | --- | --- |
| **SR. No.** | **Eligibility Criteria** | **Compliance Rationale** |
| **1.** | **Types of Project:**  Eligible projects shall include physical action/implementation on the ground. Pre-identified eligible project types are identified in the Eligibility Principles and Requirements section. | **Compliant**  The project activity is a fuel-switch project that involves partial or complete (where possible) swapping from HFO to NERADO during the smelting process of aluminium and meets the Principles and Requirements guidelines set out in the Eligibility Principles and Requirements section. |
| **2.** | **Location of Project:**  Projects may be located in any part of the world. | **Compliant**  The project activity will be developed within the host country boundary of Malaysia. |
| **3.** | **Project Area, Project Boundary and Scale:**  The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements. In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard program of a similar nature, the project shall demonstrate that there is no double counting of impacts at design and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of impacts amongst projects). | **Compliant**  The project activity are will be defined in detail in section A.2 and B.3 of this document, and is compliant with the rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements.  The project activity is also not included or involved with any other voluntary or compliance standards programme, nor does it overlap with that of another Gold Standard or other voluntary or compliance standard program of a similar nature.  This criterion may be demonstrated through the signed proposal between CRX and JTS, whereby CRX will be the sole CME to JTS with regards to the project activity. |
| **4.** | **Host Country Requirements:** Projects shall be in compliance with applicable Host Country’s legal, environmental, ecological and social regulations. | **Compliant**  The project activity is in compliance with applicable Host Country’s legal, environmental, ecological and social regulations. This is demonstrated through the approval issued by the Department of environment Johor on JTS’s EIA report on the project activity, and further supported by the subsequent issuance of licence by Malaysia’s Department of Environment.  In addition, JTS have also been issued with a manufacturing licence by the Ministry of International Trade and and Industry of Malaysia to carry out the project activity. |
| **5.** | **Contact Details:**  As part of the Project Documentation the Project Developer shall provide (i) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted. | **Compliant**  Contact details of the Project Developer (JTS) for all legal documentation will be made available to the validating body as well as Gold Standard representatives. Global stakeholders may also reach out to project developers through the continuous grievance tool on the JTS website. |
| **6.** | **Legal Ownership:**  Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and informed consent (FPIC). Note that for Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example carbon credits) shall be demonstrated. certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising. | **Compliant**  The nature of the project activity is independent of JTS’s sale of Aluminium to its clients, therefore JTS retains Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification. |

* + 1. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

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JTS Engineering Sdn Bhd is the project developer of the project activity and has the legal right to control and operate the project.

The project ownership has been demonstrated through the below supporting documents:

1. **Certificate of incorporation**

This certificate of incorporation of JTS Engineering Sdn Bhd provided by SURUHANJAYA SYARIKAT MALAYSIA, a statutory board that regulates the corporate and business affairs in Malaysia, gives the legal right to allow a fuel switch project to take place as part of making the operations of the company more sustainable and resource efficient.

1. **Purchase order for equipment**

The purchase order issued by JTS for the purchase of Crude Palm Oil firing equipment and thermal oil heating for 3-unit dross furnace serves as further evidence that it has the legal right, ownership and control of the Project.

1. **Agreement between CRX and JTS Engineering Sdn. Bhd.**

The agreement signed between CRX and JTS gives both companies the legal right to share the carbon credits generated from the Project.

##### A.2 Location of project

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Lot 227 Jalan Tembaga 2, 81700 Pasir Gudang Johor, Malaysia

Geographical Coordinates: Latitude 1° 27' 2.6028'' N Longitude: 103° 53' 42.036'' E

A high angle view of a building

Description automatically generated with low confidence

Figure 2: Project site location.

##### A.3 Technologies and/or measures

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The technology of this project activity consists of the fuel switching from Heavy Fuel Oil (HFO) to the JTS patented Non-Edible Raw Agriculture-Derived Oil (NERADO) Alternative Fuel, that is used during JTS’s processing of Steel Ingots.

The alternative fuel is used mainly during the smelting process in the rotary furnace (Fig. 3).

A picture containing outdoor, night

Description automatically generated

Figure 3: Smelting in rotary furnace.

The aluminium dross recovery industry standard of fuel used by the aluminium dross recovery plants are fossil fuels like Natural gas, Diesel or Heavy Fuel Oil (HFO), a type of residual fuel oil used for re-fueling marine vessels. These fuels are essential to sustaining a minimum temperature of 660.3°C is essential to recover aluminium from dross however, it results in greater carbon emissions.

As such an alternative sustainable fuel is needed that can achieve the required temperature and remain as cost-effective and competitive as HFO.

The switch to NERADOs is the selected choice as they are first and foremost derived from sustainable oil sources, such as Crude Palm Oil (CPO) and Sludge Palm Oil (SPO) from palm plantations, and Coconut Acid Oil. However, a system had to be designed to use these NERADOs without converting them into Biodiesels which would require additives and hence increased carbon footprint. This includes the replacement of a fuel firing system that is specially calibrated to fuel NERADOs into the furnace efficiently. The replaced fuel firing system also has the capability to fire other kind of liquid fuels such as HFO and diesel fuels.

NERADOs have characteristics such as peak heat release and combustion rate, that are similar to that of HFO, are liquid at the range of heating temperatures similar to HFO and cause minimal corrosion to equipment and must above all have lower emissions compared to HFO. All these benefits must also be achieved while meeting the average fuel price set by the firm’s budget.

Keeping all these parameters in mind JTS has been undertaking tests to find the best and most sustainable alternative. These efforts contribute to undertaking sustainable industrialization as well as foster innovation. By replacing a CO2 intensive oil with a less pollutive product.

**Comparison Table between Heavy Fuel Oil (HFO) vs Crude Palm Oil (CPO)**

**Table 2: Comparison between Heavy Fuel Oil (HFO) vs Crude Palm Oil (CPO).**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **HFO** | **CPO** | **Remarks/References** |
| Average 2018 pricing in Malaysian Ringgit (RM/l) | 2.23 | 2.24 | * 2019 - 2022 JTS fuel consumption NERADO vs Fossil Fuels * [Monthly Palm Oil Trade Statistics, 2018 – MPOC](https://mpoc.org.my/monthly-palm-oil-trade-statistics-2018/) |
| Density, Kg/l) | 1.01 | 0.89 | * Exxon Mobil Marine fuel oil ISO 8217:2012 * [PALM OIL PROPERTIES - Chempro Gujarat India](https://www.chempro.in/palmoilproperties.htm) |
| Net Calorific value, MJ/Kg | 40.5 | 37 | * Biograce condensed list of standard values |
| Sulphur Content,% | 0.5 to 3.5% | 0.00097 to 0.02 | B. He, B & H. Van Gerpen, J & C. Thompson, J. (2010). Sulfur Content in Selected Oils and Fats and their Corresponding Methyl Esters. Applied Engineering in Agriculture. 25. 10.13031/2013.26319. |
| Nitrogen content | 0.2 to 0.4% | 0.02 to 0.0215 | Lim, T.H. & Bari, S & Yu, C.W.. (2017). USING CRUDE PALM OIL (CPO) AS DIESEL ENGINE FUEL. ASEAN Journal on Science and Technology for Development. 19. 1. 10.29037/ajstd.334. |

\*\*\* CPO/Biodiesel which is extracted from palm trees can be considered carbon natural vs LFO

From JTS’s experiments the temperature for using the oil has to be (set above 33 oC) and to ensure the fuel burns properly and achieves complete combustion to minimize soot.

##### A.4 Scale of the project

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As less than 10,000 tons of CO2-eq reductions are generated each year, the project is considered a micro-scale project.

##### A.5 Funding sources of project

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The project activity does not have any public funding or Official Development Assistance (ODA) funding.

#### SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

##### B.1. Reference of approved methodology (ies)

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AMS.III.AS – Switch from fossil fuel to biomass in existing manufacturing facilities for non-energy applications version 02.0

With reference to the following tools where applicable:

* “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” Version 3.0
* “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” Version 3.0
* “Upstream leakage emissions associated with fossil fuel use” Version 2.0

##### B.2. Applicability of methodology (ies)

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The project activity is a fuel switch project in an existing manufacturing facility and there meets the applicability criteria states in the methodology AMS-III.AS:

Table 3: Methodology applicability assessment.

|  |  |
| --- | --- |
| **Applicability** | **Compliance Status** |
| This methodology is applicable to project activities that involve switching (complete or partial) from the use of carbon intensive energy source (or a mix of energy sources) of fossil fuel origin to renewable biomass or a mix of renewable biomass and fossil fuel in existing manufacturing facilities (e.g. steel, ceramics, aluminium, lime, clinker production). | **Yes**  The proposed project activity involves a partial or complete switch (where possible) from Heavy Fuel Oil to Non-edible Raw Agriculture-Derived Oil in an existing aluminium dross recycling plant. Hence, this criterion is met by the project. |
| Fuel switching may also result in energy efficiency improvements; however, the primary aim of project activity is to reduce emissions through fuel switching | **Yes**  The fuel switching does not result in energy efficiency improvements, however the primary aim of the project activity is to reduce emissions through fuel switching from HFO to Non-edible Raw Agriculture-derived Oil.. |
| The methodology is applicable if the following requirements are met:   1. The baseline fossil fuel and the project biomass are consumed in thermal energy conversion equipment (e.g. furnaces, kilns, dryers) that are used in the manufacture of products (e.g. steel, ceramics, aluminium, lime, clinker). | **Yes**  The baseline fuel and project biomass are consumed for thermal energy conversion equipment i.e. the furnace to smelter aluminium dross. Hence, this criterion is met by the project. |
| 1. It shall be demonstrated, with historical data, that for at least the immediately prior three year to the start date of project, only fossil fuels (nonrenewable biomass) were used in the production systems, which are being modified, retrofitted or replaced. In cases where small quantities of biomass were used for experimental purposes then this can be excluded | **Yes**  In the preceding three years from the start date of the project only fossil fuel was used in the production system, except for in 2019 where small quantities of biomass fuel were used for experimental purpose. Hence, this criterion is met. |
| 1. Regulations do not restrict the use of the baseline fossil fuel or require the use of project biomass and low carbon energy sources unless widespread noncompliance (less than 50 per cent of manufacturing production activities comply in the country) of the local regulation is evidenced; | **Yes**  There are no regulations that restrict the use of baseline fossil fuel or require use of project biomass in Johor/Malaysia. Hence, the criterion is met. |
| 1. The production process where the fuel switch takes place shall have a distinct energy input (i.e. specific fuels) and distinct output (i.e. intermediate or finished product). The output of each element process shall be an output for which an appropriate international/national standard or industrial norm exists. | **Yes**  In the proposed project activity, the distinct energy input is the Non-edible Raw Agriculture-derived Oil, and the distinct output is Aluminium ingots which will be produced in accordance with the buyer’s specification. |
| 1. This methodology is not applicable to project activities where primary output of the processes is energy (e.g. heat, electricity) that can be directly measured. | **Yes**  The primary output of this project activity is aluminium ingot and not energy. Therefore, this criterion is met. |
| 1. The product(s) (e.g. ceramic insulators, tiles, steel ingots, lime, aluminium cookware) produced in the industrial facility throughout the crediting period shall be equivalent to the product(s) produced in the baseline.   For the purposes of this methodology, equivalent products are defined as products having the same use, the same general physical properties, and which function in a similar manner. In addition, products produced in the industrial facility throughout the crediting period shall provide the same level of service, or better, and be of the same level of quality, or better than the product(s) produced in the baseline. When national or international product standards apply to the product(s), product quality shall be as defined in such standards, otherwise the relevant industrial norms are to be followed. | **Yes**  As provided in the production report the production during the crediting period will be equivalent to that in the baseline.  Products produced by the project activity throughout the crediting period will provide the same level of service, or better, and be of the same level of quality, or better than the product(s) produced in the baseline. Therefore, this criterion is met. |
| 1. The type of input materials used in the project shall be homogeneous and similar to the input material that was used in the baseline and any deviation during the crediting period of input material type, composition, or amount used per unit of product output shall be within the range of ±15 percent of the baseline characteristics and values. | **Yes**  The type of input material used in the project will be homogeneous compared to the baseline as the production process remains the same. therefore, the amount of raw input material remains the same and will be within the range of ±15 percent compared to the baseline. |
| 1. The facilities involving modification, retrofit and/or replacement shall not influence the production capacity beyond ±15 per cent of the baseline capacity. | **Yes**  As provided in the production report the production capacity is the same/ ± 15 percent of the baseline.  Therefore, this criterion is met. |
| Any emissions reduction derived from chemical processes related to the transformation of raw materials in the industrial facilities are not eligible for claiming certified emission reductions (CERs). Examples include de-carbonisation of raw materials (i.e. CaCO3 and MgCO3 bearing minerals) in kiln producing clinker and utilization of biomass as a reducing agent in metal ore reduction processes using charcoal. | **Not Applicable**  No raw materials are being transformed through a chemical process in the industrial facility and therefore there are no certified emission reductions to be claimed. Therefore, this criterion is not applicable to the project activity. |
| The renewable biomass utilized by the project activity shall not be chemically processed (e.g. esterification to produce biodiesel, degumming and/or neutralization by chemical reagents) prior to the combustion but it may be processed mechanically (e.g. pressing, filtering)/thermally (e.g. gasification to produce syngas). | **Yes**  The renewable biomass utilized by the project activity is not chemically processed.  Therefore, this criterion is met. |
| This methodology is applicable to project activities that involve a retrofit of (an) existing plant(s); or a replacement of (an) existing plant(s) that must have been in operation for at least the immediately prior three years to the start date of the project activity. This requirement is in order to ensure that adequate baseline performance data are available. | **Yes**  The proposed project involves a replacement of a fuel firing system in an existing plant that has been in operation for at least three years prior to the start date of the project activity. The replacement includes the addition of a new fueling system with filters, jacketed pipes and heaters. The replacement took place in the second half of 2019, with the commissioning of the equipment on 27/06/2019. Therefore, this criteria is met. |
| Farmer records shall be cross-checked with records from seed suppliers and synthetic nitrogen fertilizer suppliers. In case of discrepancies between farmer records and those from the respective suppliers, the most conservative value shall be taken. | **Not Applicable**  The Non-edible Agriculture-Derived oil is supplied by a supplier and not a farmer and hence this criterion is not applicable. |
| In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply. | **Not Applicable**  The biomass is not sourced from dedicated plantations. Therefore, this criterion is not applicable to the project activity. |
| In cases where the project activity utilizes charcoal produced from renewable biomass as fuel, the methodology is applicable provided that:   1. Charcoal is produced in kilns equipped with methane recovery and destruction facility; or 2. If charcoal is produced in kilns not equipped with a methane recovery and destruction facility, methane emissions from the production of charcoal shall be considered. | **Not Applicable**  The project activity does not utilize charcoal produced from renewable biomass as fuel and hence this criterion is not applicable |
| The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the most recent version of “General guidelines for SSC CDM methodologies”. If the remaining lifetime of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e. the time when the affected systems would have been replaced in the absence of the project activity. | **Yes**  According to the most recent version of “General guidelines for SSC CDM methodologies”. The lifetime of the system does not increase in an overall scenario; however, the lifetime of certain equipment used such as filter bags, dust collection will be lengthened as the corrosion level will be lower due to change in the fuel.  This increase, however, is negligible.  As such, the crediting period shall remain the estimated lifetime of the system that would have been without in the absence of the project activity. Hence, this criterion is met. |
| In cases where product output (e.g. hot/fused metal) cannot be measured, the input material used in the manufacturing process can be used as a proxy for determining baseline/project emissions | **Not Applicable**  In the proposed project activity, the output can be measured and therefore this criterion is not applicable |
| Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually. | **Yes**  The emission reduction in the proposed project activity is 1,692 tCO2e annually and hence this criterion is met |

##### B.3. Project boundary

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In accordance with paragraph 19 of the AMS-III.AS (version 02.0), The project boundary is the physical, geographical site where the switching of energy sources takes place. It includes all installations, processes or equipment affected by the switching.

A diagram of a project

Description automatically generated with low confidence

Figure 4: Project boundary.

Table 4: Emission sources and gases to be included within the project boundary.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | | GHGs | Included? | Justification/Explanation |
| **Baseline scenario** | Emissions generated from the use of Heavy Fuel Oil that is being switched to biomass in the project activity | CO2 | **Included** | Main source of baseline emissions. |
| CH4 | **Excluded** | Minor Source. These emissions are excluded for simplicity |
| N2O | **Excluded** | Minor Source. These emissions are excluded for simplicity |
| Other | **Excluded** | Minor Source. These emissions are excluded for simplicity |
| **Project scenario** | Emission from additional electricity and as a result of the project activity (PE*elec,y*) | CO2 | **Included** | It is a significant emission source. The project activity includes installation of new equipment that may increase electricity consumption |
| CH4 | **Excluded** | Excluded for simplification |
| N2O | **Excluded** | Excluded for simplification |
| Emissions from fossil fuel consumption as a result of the project activity (PE*fossilfuel,y*) | CO2 | **Excluded** | The project activity does not include consumption of fossil fuels |
| CH4 | **Excluded** | The project activity does not include consumption of fossil fuels |
| N2O | **Excluded** | The project activity does not include consumption of fossil fuels |
| Emission from transportation of the renewable biomass from the place of origin to the manufacturing facility in the year (PE*transport,y*) | CO2 | **Included** | Can be a significant source of emissions. The emissions from trucks/tanker used for transportation of the biomass oil is considered |
| CH4 | **Excluded** | Emission is negligent and hence excluded for simplification |
| N2O | **Excluded** | Emission is negligent and hence excluded for simplification |
|  | Emissions from the cultivation of renewable biomass at the dedicated plantation (PE*cultivation,y*) | CO2 | **Excluded** | The project activity does not include biomass from a dedicated plantation |
|  | CH4 | **Excluded** | The project activity does not include biomass from a dedicated plantation |
|  | N2O | **Excluded** | The project activity does not include biomass from a dedicated plantation |

##### B.4. Establishment and description of baseline scenario

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According to AMS-III.AS, for a fuel switch project, the baseline is related to the historical fossil fuel consumption associated with the element processes, affect by the project activity that would continue to occur in the absence of the project activity. The baseline scenario is that the Heavy Fuel Oil was used to power the furnace in the recycling of aluminium dross.

The baseline equipment has remained the same, however the fuel firing system of the project activity has been replaced with a new fueling system which was commissioned on 27/06/2019. JTS will implement regular maintenance to ensure that the equipment will be able to sustain over the course of the 10-year crediting period.

The current industry standard of fuel used by the aluminium dross recovery plants are fossil fuels like Natural gas, Diesel or Heavy Fuel Oil (HFO), a type of residual fuel oil used for re-fueling marine vessels. With the shipping industry also beginning to respond to the challenges of climate change, industries dependent on HFO and similar residual fuel have also begun searching for new ways to meet emissions standards set by the Paris Agreement in 2015. These standards dictate reducing the CO2, NOx and SOx content of the HFO used, or in the case of the shipping industry, to rely on hybrid energy technology.

The Project Activity revolves around the fuel-switch from HFOs to NERADOs, an alternative fuel that has similar characteristics and qualities to HFOs but causes minimal corrosion to equipment and must above all have lower emissions compared to HFO.

In the absence of the project activity, the aluminium dross recycling plant would continue to consume fossil fuel as shown in the table below:

Table 5: Historic fossil fuel consumption in the aluminium dross recycling plant.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Heavy fuel oil consumed (liters)** | **Source of Information** | **Annual aluminium produced (kg)** | **Source of Information** |
| 2018 | 998,860 | “2016-2022 JTS fuel consumption” | 4,107,027 | “JTS Product Output Data 2016 – 2022” |
| 2017 | 1,088,610 | 4,659,448 |
| 2016 | 973,950 | 4,730,438 |



##### B.5. Demonstration of additionality

The additionality of the project will be demonstrated using ‘TOOL 21 – Demonstration of additionality for small-scale project activities (version 13.1)’. The proposed project is first assessed for automatic additionality following the provision of ‘TOOL19 - Demonstration of additionality of microscale project activities (version 10.0)’ to be used alongside TOOL21.

In accordance with paragraph 13 of TOOL 19, “*Type III project activities that aim to achieve emission reductions at a scale of no more than 20 ktCO2e per year, are additional if any one of the following conditions is satisfied:*

1. *The geographic location of the project activity is an LDC/SIDS or SUZ of the host country;*
2. *The project activity consists of one or more of the following technology/measures17 related to an emission reduction activity where end users of the technology/measure are households, communities or SMEs:*
3. *Solar lamps;*
4. *Biogas digesters.*

Given the nature of the proposed project being a micro-scale project that consists of switching of fuel, it does not satisfy the requirements under TOOL19 for automatic additionality and hence would require to use regular additionality procedures as detailed out in TOOL21**.**

Therefore, in order to demonstrate additionality for this project, the tool, TOOL 21- Demonstration of additionality for small-scale project activities shall be used. As per paragraph 5 of the tool, project participants shall provide an explanation as to show that the project activity would not have occurred anyway due to at least one of the following barriers:

(a) Investment barrier:

(b) Technological barrier;

(c) Barrier due to prevailing practice

(d) Other barriers:

**Investment Analysis**

JTS has chosen to provide an explanation by demonstrating that there is an investment barrier where a financially more viable alternative to the project activity would have led to higher emissions. The investment barrier will be reflected through conducting an investment analysis in accordance with ‘TOOL27 Methodological Tool: Investment Analysis (version 13.0)’’. As per TOOL27 the purpose of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of the CDM.

**Determine appropriate analysis method**

The proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used*.* Therefore, an investment comparison analysis will be used in the following steps below.

**Investment comparison analysis**

The financial indicator identified to be applied to the investment comparison analysis will be the Levelized cost of aluminium production, and it will be compared between the cost of aluminium production under the HFO scenario and NERADO scenario.

**Calculation and comparison of financial indicators**

Financial indicator calculations will be done using a financial model based on a list of economic parameters provided in this standalone project. This list of parameters as applicable would include the following:

Table 6: Parameters for investment analysis.

|  |  |  |
| --- | --- | --- |
| **Details Input Parameters of the Project Activity (NERADO)** | | |
| **Fuel Info (HFO)** | | |
| Properties | Value | Source of Information |
| Net Calorific Value (NCV) MJ/Kg | 40.5 | * Biograce condensed list of standard values |
| Density (Kg/l) | 1.01 | * Exxon Mobil Marine fuel oil ISO 8217:2012 |
| **Fuel Info (NERADO ~ CPO)** | | |
| Properties | Value | Source of Information |
| Net Calorific Value (NCV) MJ/Kg | 37 | * Biograce condensed list of standard values |
| Density (Kg/l) | 0.89 | * [PALM OIL PROPERTIES - Chempro Gujarat India](https://www.chempro.in/palmoilproperties.htm) |
| **Baseline Scenario (Currency in Malaysian Ringgit)** | | |
| General Parameters | Value | Source of Information |
| 2018 HFO Cost (RM/l) | 2.23 | * 2016 - 2022 JTS fuel consumption NERADO vs Fossil Fuels   The 2018 HFO cost was taken as it was the highest cost over the past three year prior to the start of the project, this is to allow for a more conservative investment analysis. |
| O&M Cost (RM) | 1,101,123 | * JTS Financial Statement 2017&2018 |
| O&M Cost Inflation | 0.97% | * [Malaysia - Inflation rate 2028 | Statista](https://www.statista.com/statistics/319033/inflation-rate-in-malaysia/) |
| **Project Scenario (Currency in Malaysian Ringgit)** | | |
| General Parameters | Value | Source of Information |
| 2018 NERADO ~ CPO Price (RM/l) | 2.24 | * [Monthly Palm Oil Trade Statistics, 2018 – MPOC](https://mpoc.org.my/monthly-palm-oil-trade-statistics-2018/)   The 2018 NERADO/CPO cost was taken as it was the lowest cost over the past three year prior to the start of the project, this is to allow for a more conservative investment analysis. |
| Initial Project Investment - Equipment Cost (RM) | 238,905 | * Purchase order and invoice of equipment for the new fueling system which consists of filters, pumps, jacketed pipes and pumps. |
| O&M Cost (RM) | 1,101,123 | * JTS Financial Statement 2017&2018   The same O$M cost from the baseline scenario was considered for the project scenario to account for a more conservative approach to the investment analysis. |

Further details and information regarding the investment analysis can be found in the investment analysis spreadsheet that was attached along with the PDD as part of the validation of the project.

Table 7: Fuel consumption comparison between baseline and project scenario.

|  |  |  |
| --- | --- | --- |
| **Baseline Scenario** | | |
| General Parameters | Value | Source of Information |
| Average Annual Aluminium Production 2016-2018 (Kg) | 4,498,971 | * JTS Product Output Data 2016 - 2022 |
| Average HFO Consumed 2016-2018 (Litres) | 1,020,473 | * 2016 - 2022 JTS fuel consumption |
| Total Average Energy Output Generated from Annual Aluminium Production (MJ) | 41,742,448 | * Calculated |
| **Project Scenario** | | |
| General Parameters | Value | Source of Information |
| NERADO Fuel Required to Meet Energy Output for Annual Aluminium Production (Litres) | 1,267,612 | * Calculated |

Based on the calculations using the fuel properties and parameters from Table 6, it is expected that in the project scenario, JTS is expected to use approximately 24% more of NERADO oil in order to generate the same annual production of aluminium ingots.

Table 8: Average cost of fuel (HFO vs NERADO) 2018.

|  |  |  |
| --- | --- | --- |
| **Fuel Type** | **Average Cost of Fuel**  **(RM/Liter)** | **Source of Information** |
| HFO | 2.23 | 2016 - 2022 JTS fuel consumption NERADO vs Fossil Fuels |
| NERADO ~ CPO | 2.24 | [Monthly Palm Oil Trade Statistics, 2018 – MPOC](https://mpoc.org.my/monthly-palm-oil-trade-statistics-2018/) |

The table below shows the levelized cost of aluminium production using HFO and NERADO respectively over the lifespan of the project. The respective levelized costs are derived using the sum of total cost (which includes any applicable investment cost, operation & maintenance cost, fuel costs) accounting for the applicable discount rate and subsequently divided by annual aluminium ingot production. The detailed calculations are provided in the investment analysis spreadsheet attached as part of the project registration process.

Table 9: Levelized cost of aluminium production (HFO vs NERADOs), currency are all in Malaysian Ringgit.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fuel Type** | **Net Present Value of Total Cost (RM)** | **Total Aluminium Output over lifespan of project (Kg)** | **Levelized cost of aluminium production (RM/Kg)** | **Source of information** |
| HFO | 28,817,608 | 39,771,004 | 0.725 | - Calculated figure (refer to investment analysis spreadsheet) |
| NERADOs | 33,706,661 | 39,771,004 | 0.848 | Calculated figure (refer to investment analysis spreadsheet) |

Coupled with the need for the 24% increase in fuel consumption by NERADOs, the levelized cost of aluminium production using NERADO would be approximately 17% more than the levelized cost of HFO for the same annual production of aluminium ingots.

**Outcome of financial indicator calculation and comparison**

From the analysis above, the levelized cost of fuel with 100% HFO in operation would be lower compared to the levelized cost of fuel with 100% NERADO in operation. As such it justifies that 100% HFO operations is a financially more viable alternative to the project activity. However, this would have led to higher emissions.

**Sensitivity Analysis**

A sensitivity analysis was performed in order to evaluate if there’s any possible scenario where the project can be economically feasible for JTS investment decision criteria without considering CER’s revenue.

In reference to paragraph 28 of TOOL27.

“The ultimate objective of this sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than this scenario presented, in order to provide a cross-check on the suitability of the assumption used in the development of the investment analysis.”

The following variables were identified to be included in the sensitivity analysis:

* + 1. Fossil fuel prices: This cost represents the baseline fuel energy cost that will be generated in absence of project activity as a default activity.
    2. Biomass fuel prices: This cost represents the project fuel energy cost that will be generated during project activity due to fossil fuel displacement.

The financial indicator fluctuates are presented below:

Table 10: Sensitivity analysis.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters** | **Variation of unit fuel cost (%)** | | | | |
| **21% decrease in NERADO Cost** | **10% decrease in NERADO Cost** | **Cost as of 2018 data** | **10% increase in HFO cost** | **26% increase in HFO Cost** |
| Levelised cost of Aluminium Production using HFO (RM/Kg) | 0.725 | 0.725 | 0.725 | 0.773 | 0.850 |
| Levelised cost of Aluminium Production using NERADO (RM/Kg) | 0.722 | 0.788 | 0.848 | 0.848 | 0.848 |

**Outcome of sensitivity analysis:**

Based on the sensitivity analysis that was done in accordance with paragraph 28 of TOOL27whereby the applicable variables were subjected to reasonable variations with the results being illustrated in table 10 above. The table showed when the cost of HFO and NERADO were subjected to reasonable variations range of +10% and -10% and it showed that the baseline scenario would still be the more financially viable compared to the project scenario. Furthermore, the sensitivity analysis also covers to the extent where the project activity scenario becomes more financially viable without VER revenue. For that to happen, it would in the scenario whereby either the price of NERADO cost to reduce by 21% or the price of HFO cost in increase by 26%.

A scenario in which the NERADO cost would reduce significantly by 21% from the 2018 value is very unlikely as the historical pricing of NERADO (CPO) over the past 10 years have been stable in ranging above the 2018 price point. While it is possible for CPO prices to experience short-term fluctuations due to market dynamics, the combination of steady demand, limited supply, stable pricing, and various markets factors such as regional government policies and international trade agreements in favour of CPO makes a significant and sustained decrease in CPO prices unlikely.

While on the other hand, the scenario of having an increase in HFO price over 26% from the 2018 value is unlikely. Reasons to support this are because average historical pricing of HFO over the past 10 years have been ranging approximately 44% below the threshold level of the 26% increase from the 2018 HFO price. Furthermore, there are other external factors such as a declining demand for HFO due to regulatory factors that drive the shift from HFO to alternative fuels. In addition, the market for fuel oils has been relatively competitive as suppliers and producers face competition from various sources, including other types of fuel oils and energy sources. This competition also helps to regulate the HFO prices and prevents substantial increase in price.

**Outcome of Investment Analysis:**

The additionality of the project activity has been clearly demonstrated based on the Investment analysis using the levelized cost of aluminium production as the financial indicator.

In conclusion, the project is in accordance with the requirements of this step, and it’s demonstrated that the project’s activity is additional; this conclusion is supported by the following:

* In the investment analysis whereby, it is justified that 100% HFO Operations are a financially more viable alternative to the project activity.

* In the sensitivity analysis, it has been demonstrated that even with the variation of cost between HFO and NERADO, the project activity of using NERADO being more financially attractive compared to using HFO is unlikely as mention in the section above.

In conclusion, the development of the project activity without the carbon credits incentive does not represent an attractive investment alternative.

B.5.1 Prior Consideration

>>

The project activity is considered as a retroactive project as stated in paragraph 4.1.49 (b) of the GS4GG Principles & Requirements V1.2, the relevant document (JTS Board Resolution) to demonstrate prior consideration have been provided during the validation of the project.

However, due to the disruptions resulting from the Covid-19 pandemic which took place since 2020 a Deviation Request Form V3.0 was submitted by the project proponent and approved by Gold Standard. Therefore, the impact of the deviation is as follows “*this deviation will allow the project to undergo preliminary review/first submission, beyond the 1 year from the project start data, and also undertake the Stakeholder Consultation at a later and more suitable date*.”. Based on the approved deviation request, the project activity has since submitted the required documents for preliminary review and successfully completed the preliminary review.

In addition, as part of the approval of the deviation request, compliance with four requirements would have to be fulfilled during the design certification process. The compliance of the four requirements is demonstrated below.

Table 12: Compliance for deviation request approval requirements

|  |  |  |
| --- | --- | --- |
| **No.** | **Requirements** | **Compliance Status** |
| I | As an alternative to fossil fuels, the proposed project activity makes use of  renewable biomass resources, in line with the definition provided in CDM’s EB23 Annex 18 here. The renewability of the biomass shall be monitored along the crediting period and be included in the Monitoring Plan, where required by the applied Impact quantification methodology. | The NERADO fuel used in the project activity is derived from sources such as Sludge Palm Oil (SPO), Palm Acid Oil (PAO), or Coconut Acid Oil (CAO). Based on multiple published literature[[2]](#footnote-3), it supports that the sources of NERADO fuels are considered as renewable biomass resources which are in line with the definition provided in CDM’s EB23 Annex 18. Specifically, the condition that applies refer to condition 4 where the biomass SPO, PAO and CAO are considered as biomass residues as they are considered as by-products, residues and wastes from agriculture processes and other related industries. In addition, the cultivation of the biomass residues do not involve a decrease of carbon pools.  The monitoring of the renewability of the NERADO fuels used in the project activity will be included in the monitoring plan along the crediting period.  Based on the above statements, the requirement I as stated in the deviation request form is met. |
| II | The proposed project activity does not result in the diversion of existing biomass resources. The project activity expected to make use of biomass resources already in use shall NOT be eligible for Gold Standard registration unless convincing evidence is provided to demonstrate that the current  users agree with the envisioned shift of use (potential leakage associated to such a shift must be taken into account). In the absence of such an agreement, the Project Developer shall demonstrate that their project activity makes use of surplus biomass for each type of biomass resource used. | The NERADO fuel used in the project activity consists of coconut acid oil and palm sludge oil. Based on a literature review[[3]](#footnote-4) done by JTS along with market research, it shows that the production of such oils in Malaysia in 2019 was between 94,610 – 112,160 MT. JTS consumes approximately 900MT of such oil per annum which equates to only 0.95% to 0.8% of the total net production. Therefore, it is sufficient to justify that the project activity would not result in the diversion of existing biomass resources as JTS’s consumption is only a minute fraction of the total production.  The criteria to ensure that the project activity does not result in the diversion of existing biomass resources will be included in the monitoring plan along the crediting period.  Based on the statement above, the requirement II as stated in the deviation request form is met. |
| III | Project Developer shall demonstrate that their proposed project will only make use of degraded land and shall include this criterion in the Sustainability Monitoring Plan to ensure there is no diversion of land from other essential purposes like food production. Two exceptions may be  considered:   1. Convincing evidence is provided showing that the envisioned energy crop is part of a traditional rotational cropping, OR 2. An increase of the productivity is obtained, locally and to the benefit of the current users, through measures implemented in the context of the activity so as to at minimum compensate for the part of the land newly allocated to growing the energy crop.   Compliance with these criteria above must be monitored over the crediting period and thus be part of the Monitoring Plan. | The project activity does not occur on degraded land, hence this condition does not apply to the project as the project activity deals with the NERADO fuel from its supplier.  To justify that the project activity does not divert resources for essential purposes. The palm sludge oil used is a by-product of crude palm oil generation. Malaysia uses crude palm oil and not palm sludge oil or coconut acid oil for Biodiesel production. Therefore, JTS consumption of both palm sludge oil and coconut acid oil does not have any impact on biodiesel production. Even though coconut acid oil is commonly used in the soap production industry, based on published newspaper article, Malaysia encourages the use of crude palm oil to produce Soap based products as well. Therefore, JTS consumption of Either coconut acid oil or palm sludge oil does not impact the soap industry as well. Furthermore, it has also been demonstrated that JTS’s coconut acid oil and palm sludge oil consumption is only a minute fraction of the total production.  The criteria to ensure that the project activity will not divert land from other essential purposes be included in the monitoring plan along the crediting period.  Based on the statement above, the requirement III as stated in the deviation request form is met. |
| IV | If the project activity is making use of palm oil and/or palm oil mill by-products or residues for electricity and/or heat generation, and/or for biofuel production, the Project Developer shall provide a Compliance Report showing that the project is in compliance with the latest version of the Roundtable on Sustainable Palm Oil guidance document on Principles and Criteria for Sustainable Palm Oil Production (including the national interpretations), validated by a GS-VVB, and provided as part of the  documentation to be reviewed at the time of the registration review. Project Developer must demonstrate that they have started the process for RSPO compliance at the time of preliminary review. If the project is located in a country where a national interpretation of the RSPO principles has not been  established and approved by the RSPO, compliance shall be established against the international RSPO Criteria. In such a case, the certification body must develop local indicators through a consultative process, available in the local language. | The project activity purchases NERADO fuels which are derived from palm-based oils or coconut-based oils. Therefore, it is not applicable for JTS to be certified as RSPO compliant as JTS is not involve in the production of such oils. Additionally, RSPO compliance will only be applicable when the project activity uses fuel derived from palm-based oil. Therefore, JTS will provide a declaration[[4]](#footnote-5) to ensure that any palm-based NERADO fuel purchased will only be from suppliers/sources that are RSPO compliant and would provide supporting documents where required.  Based on the statement above, the requirement IV as stated in the deviation request form is met. |

The project activity not registered as a PoA, hence paragraph 4.1.50 (b) is not applicable.

B.5.2 Ongoing Financial Need

>>

N/A

##### B.6. Sustainable Development Goals (SDG) outcomes

Table 13: Relevant Target/Indicator for each of the three SDGs

|  |  |  |
| --- | --- | --- |
| SUSTAINABLE DEVELOPMENT  GOALS TARGETED | MOST RELEVANT  SDG TARGET | SDG IMPACT |
| **INDICATOR (PROPOSED OR SDG INDICATOR)** |
| 8 Decent Work and Economic Growth | **Target 8.5**  By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value. | **Indicator 8.5.1**  Increased employment opportunities |
| 11 Sustainable Cities and Communities | **Target 11.6**  By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management. | **Indicator 11.6.2**  Annual mean levels of fine particulate matter |
| 13 Climate Action  (mandatory) | **Target 13.2**  Integrate climate change, measures into national policies, strategies and planning. | **Indicator 13.2.2**  Emission reductions in tCO2e |

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

>>**Table 14: SDG 8- Decent Work and Economic Growth**

|  |  |  |
| --- | --- | --- |
| **Project monitoring indicator** | **Baseline outcome** | **Project outcome** |
| 1) Number of males and females employed by the project. | In the baseline situation, no new jobs were created. Therefore, the baseline outcome is 28 | In project situations, the number of jobs created for males and females will be recorded. Source of data is a record keeping book and it will be cross checked by the labor contracts. |
| 2) Average monthly salary. | The average monthly salary will be determined by the record keeping book and cross checked by the salary slips. |

Net benefit of SDG8=Project outcome of SDG8 – Baseline outcome of SDG8

**SDG 11-Sustainable Cities and Communities**

The implementation of the project activity will reduce the amount of air pollution (Particulate Matter) being released into the atmosphere/working environment. This is because burning of NERADO biomass is less pollutive than burning Heavy Fuel Oil. Hence, the health and well-being of the facility workers are better protected.

In order to ascertain the improvement in working conditions and the health of people working in the facility, the contribution baseline estimation and project estimation to SDG 11 will be quantified by the reduction in PM levels (PPM) that is released into the atmosphere from the chimney furnace. This will be the difference between total PM levels in the baseline (PPMBL) and in project scenario (PPMPJ).

**SDG 13-Climate Action**

**Baseline emissions**

Project activities resulting in an annual emission reduction of less than 20 kt CO2 may apply Option 1 for baseline emissions calculations, whereas projects exceeding 20 kt CO2 shall apply Option 2.

The proposed project activity has annual emission reductions equivalent to 1,692tCO2e ; therefore, baseline emissions are calculated using Option 1.

Option 1

As per paragraph 22, for projects that involve replacing, modifying or retrofitting systems in existing facilities, the average of the immediately prior three-year historical fossil fuel consumption data, for the existing facility, shall be used to determine an average annual baseline fossil fuel consumption value. Similarly, prior three-year historical production data (excluding abnormal years) for the existing facility, shall be used to determine an average annual historical baseline output production rate.

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Table 15: Parameters for baseline emission calculation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Value** | **Remarks** | **Source of Information** |
| **Pprod,y** | 4,498,971 kg | Inclusive of Aluminium Deox[[5]](#footnote-6) | JTS Product Output Data 2016-2022 |
| **EF CO2,BL** | 0.0007164tCO2/kg | - | Calculated |
| **therefore BEy** | 4,498,971 x 0.0007164 | - | Calculated |
| **= 3,223 tCO2** | **-** |

The baseline specific emission factor (EFCO2,BL ) can be calculated ex ante as follows:

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Table 16: Parameters for baseline emission factor calculation.

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Value** | **Source of Information** |
| **FCFF,BL,i** | 1,030,678kg | Calculated Average |
| **Density** | 1.01 (kg/litre) | Exxon Mobil Marine fuel oil ISO 8217:2012 |
| **NCV FF,i** | 40.4 TJ/Gg  = 40.4 GJ/Ton  = 0.0404 GJ/kg | 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1, Table 1.2, Residual Fuel Oil |
| **EF CO2,FF,i** | 77.4 kg CO2/GJ  = 0.0774 t CO2/GJ | IPCC data |
| **P prod,BL** | 4,498.97 t  = 4,498,971 kg | 2016-2018 data taken from xls “JTS Product Output Data 2016 to June 2022” |
| **therefore EFCO2,BL** | **= 0.0007164tCO2/kg** | Calculated |

**FCFF,BL,i** is the Average annual baseline fossil fuel consumption value for fuel type i, using volume or weight units, and is derived from the follow year’s average:

Table 17: Annual fuel consumption (2016-2018).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | | | | | |
| **2016** | **Unit** | **2017** | **Unit** | **2018** | **Unit** |
| 973,950 | Litres | 1,088,610 | Litres | 998,860 | Litres |

From the above table, the average fuel consumption for fuel type i is:

(973,950 + 1,088,610 + 998,860) / 3 years = 1,020,473.33 litres/yearaverage

**FCFF,BL,i =** 1,020,473.33 litres x 1.01 (kg/litre) = 1,030,678 kg

As such,

EFCO2,BL = (1,030,678kg x 0.0404 GJ/kg x 0.0774tCO2/GJ)/ 4,498,971 kg

= 0.0007164tCO2/kg

**Project Emissions**

Project emissions can be calculated as per paragraph 33, equation (9):

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In accordance with paragraph 36 of AMS-III.AS, project emissions associated with transportation (PEtransport,y) should be calculated if the transportation of biomass is more than 200km. In this project activity, as the transport distance is less than 200km, therefore emissions from PEtransport,y can be neglected.

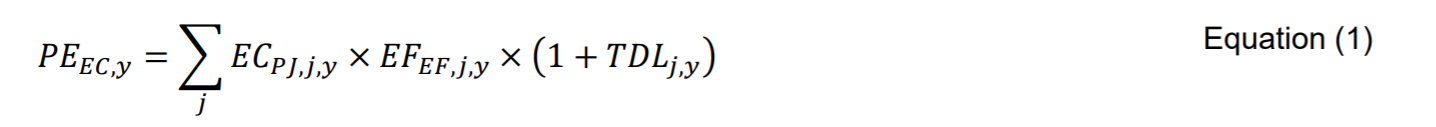
In accordance with paragraph 37 of AMS-III.AS, project emissions associated with renewable biomass cultivation (PEcultivation) should be calculated if biomass is soruced from a dedicated plantation. In this project activity, the biomass is not sourced from dedicated plantations, hence PEcultivation,y = 0.

In accordance with paragraph 38 of AMS-III.AS, project emissions associated with methane from charcoal production (PECH4,y) should be calculated if the production of charcoal in kilns were not equipped with methane recovery and destruction facility. In this project activity, it does not involve the production of charcoal in kilns, hence PECH4,y = 0. There is no usage of fossil fuel consumption, hence PEfossilfuel,y = 0.

As such, the above equation is simplified to:

Project emissions from electricity consumption

As per the methodological tool “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” PEelec,y can be calculated as such:



Determination of TDLj,y

In this situation, the electricity is being consumed from the grid, as such Scenario C: Electricity consumption from the grid, specifically ‘Case C.I: Grid electricity’ applies. As such, according to the methodological tool, a default value of 20% for TDLj,y for project electricity consumption sources is applicable for Case C.I (Data/Parameter table 3)

Table 18: Parameters for project emission calculation.

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Value** | **Source of Information** |
| **ECPJ,j,y**  (qty of electricity consumed in biomass processing) | 2,181.20 MWh | 2018 Annual Electricity Consumption. From Xls ‘Product Data Sheet\_cradle-to-gate’ |
| **EFef,j,y**  (Emission factor for electricity generation for source.) | 0.585 tCO2/MWh | Calculated |
| **TDLj,y** | 20% default value from meth. tool 05 | Default Value |
| **therefore PEelec,y** | 1,043.57 MWh \* 0.585 \* (1+0.2) | Calculated |

**As such,**

**PEelec,y=** 2,181.20 MWh x 0.585 tCO2/MWh x (1+0.2)

**= 1,531 tCO2**

Determination of EFEF,j,y = EFgrid,CM,y

As per methodology, combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO2/MWh), Version 07.0. In this tool, EFEF,j,y is the same as EFgrid,CM,y.

The combined margin (EFgrid,CM,y) is the result of a weighted average of two emission factors pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source, such as from the country’s Electricity Regulatory Authority.

As per the TOOL07 "Tool to calculate the emission factor for an electricity system" Version 07.0, the following steps have been followed.

**STEP 1: Identify the relevant electricity power systems**

STEP 2: Determine boundary of calculation in the project electricity system

STEP 3: Select a method to determine the operating margin (OM);

STEP 4: Calculate the operating margin emission factor according to the selected method.

STEP 5: Calculate the build margin (BM) emission factor;

STEP 6: Calculate the combined margin (CM) emission factor.

The tool defines that “for determining the electricity emission factors, identify the relevant electricity system. Similarly, identify any connected electricity systems”.

**STEP 2: Determine boundary of calculation in the project electricity system**

Project participants have the option of choosing between the following two options to calculate the operating margin and build margin emission factor:

**Option I:** Only grid power plants are included in the calculation.

**Option II:** Both grid power plants and off-grid power plants are included in the calculation.

The Project Participant has chosen only grid power plants in the calculation.

**STEP 3: Select a method to determine the operating margin (OM) method**

The calculation of the operating margin emission factor (EFgrid,OM,y) is based on one of the following methods, which are described under Step 4:

(a) Simple OM, or

(b) Simple adjusted OM, or

(c) Dispatch data analysis OM, or

(d) Average OM.

The data required to calculate simple adjusted OM or Dispatch data analysis is not possible due to lack of availability of this activity data in the host parties within the PoA boundary. The choice of the other two options (a and d) for calculating the operating margin emission factor depends on specific conditions in the grid to which the CPA will export electricity. Depending on such conditions, either method (a) or method (d) could be used.

**Simple OM**

The “Simple operating margin” has been calculated as per the weighted average emissions (in tCO2/MWh) of all generating sources serving the system, excluding solar generation.

For the simple OM, and the average OM, the emissions factor can be calculated using either of the two following data vintages:

* **Ex-ante option:** If the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.  
    
  **Or**
* **Ex-post option:** If the ex-post option is chosen, the emission factor is determined for the year in which the CPA displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

If PP choses the ex-ante option for the calculation of OM, 3 years’ worth of generation weighted average of the most recent years available at the time of submission of CDM-PoA-DD to the DOE for validation will be required. This parameter will be fixed for the first crediting period with no need to update.

OM determined at validation and will be the same throughout the crediting period. There will be no requirement to monitor & recalculate the emission factor during the first crediting period.

**Average OM**

The average OM emission factor (EFgrid,OM-ave,y) is calculated as the average emission rate of all power plants serving the grid, using the methodological guidance as described under (a) above for the simple OM, but including in all equations also low-cost/must-run power plants.

Option A (Simple OM method) should be preferred and must be used if fuel consumption data is available for each power plant / unit.

**STEP 4: Calculate the operating margin emission factor according to the selected method**

Under this option, the simple OM emission factor is calculated based on the net electricity generation of each power unit and an emission factor for each power unit, as follows:

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As such, according to “2017 CDM Electricity Baseline for Malaysia” study by Malaysian Green Technology Corporation, the Operating Margin for peninsular Malaysia is listed as **0.644 tCO2/MWh**.

**STEP 5: Calculate the build margin emission factor (EFBM,y)**

BM is calculated ex-ante based on the most recent information available at the time of submission of CPA-DD and will be renewed at the end of every 7 year-period during the 3 renewable crediting periods.

In terms of vintage of data, project participants can choose between one of the following two options:

**Option 1.** For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

**Option 2.** For the first crediting period, the build margin emission factor shall be updated annually, ex-post, including those units built up to the year of registration of the CPA or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex-ante, as described in option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

The build margin emissions factor is the generation-weighted average emission factor (tCO2/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as follows:

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The CO2 emission factor of each power unit m (EFEL,m,y) should be determined as per the guidance in step 3 (a) for the simple OM, using for ‘y’ the most recent historical year for which power generation data is available, and using for ‘m’ the power units included in the build margin.

As such, according to “2017 CDM Electricity Baseline for Malaysia” study by Malaysian Green Technology Corporation, the Build Margin for peninsular Malaysia is listed as **0.525 tCO2/MWh**.

**STEP 6: Calculate the combined margin (CM) emissions factor**

**Combined Margin –** The combined margin is the weighted average of the simple OM and the BM. For intermittent and non-dispatchable generation types such as solar photovoltaic, the Tool to calculate the emission factor for an electricity system, Version 07.0, allows to weigh the OM and the BM.

The baseline emission factor is calculated using the combined margin approach as described in the following steps:

**Calculation of Baseline Emission Factor**

The baseline emission factor EFgrid,CM,y is calculated as the weighted average of the Operating Margin emission factor (EFOM,y) and the Build Margin emission factor (EFBM,y):

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As the project activity is neither a Wind of Solar PV project, wOM = 0.5 and wBM = 0.5 for the first crediting period.

Therefore, the calculation of the Combined Margin is:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| EFgrid,CM,y | = | EFgrid,OM,y | x | wOM | + | EFgrid,BM,y | x | wBM |
|  | = | 0.644 | x | 0.5 | + | 0.525 | x | 0.5 |
|  | = | 0.322 | + | 0.263 |  |  |  |  |
|  | = | **0.585** | **tCO2/MWh** | | |  |  |  |

**Leakage**

In accordance with paragraph 32 of AMS-III.AS, “General guidance on leakage in biomass project activities shall be followed to quantify leakages pertaining to the use of biomass residues”. The latest version of ‘General guidance on leakage in biomass project activities’ (version 0.3), EB 47, Annex 28 states in paragraph 18 that:

“The project participant shall evaluate ex ante if there is a surplus of the biomass in the region of the project activity, which is not utilized. If it is demonstrated (e.g., using published literature, official reports, surveys etc.) at the beginning of each crediting period that the quantity of available biomass in the region (e.g., 50 km radius), is at least 25% larger than the quantity of biomass that is utilized including the project activity, then this source of leakage can be neglected otherwise this leakage shall be estimated and deducted from the emission reductions.”

Similarly, according to the Gold Standard Renewable Energy Requirements/Community Service Activity Requirements:

“Project activities expected to make use of biomass resources already in use shall NOT be eligible for Gold Standard registration unless convincing evidence is provided to demonstrate that the current users agree with the envisioned shift of use (potential leakage associated to such a shift must be taken into account). In the absence of such an agreement, Project Developers shall demonstrate that their project activity makes use of surplus biomass for each type of biomass resources used”

As such, JTS consumes about 1,080 metric tons of NERADO oil per annum. Assuming NERADO is made up of 100% crude palm oil (CPO), the average monthly production of CPO is 1,654,864 tons and this works out to 19,858,368 tons in the year 2019, for the whole of Malaysia.[[6]](#footnote-7) As such, JTS’ consumption of 1080 tons is 0.00543% of Malaysia total output on a yearly average.

If specific to region or the state of Johor (where the project activity is located), Johor produced a total of 4,000,921 tons in 2019[[7]](#footnote-8). As such, JTS’ consumption is 0.0275% of Johor’s output in 2019.

As such, the available biomass in the region is at least 25% larger than the quantity of biomass used in this project activity, and there is a surplus of biomass available in the region and country. There is no diversion of biomass from existing uses or those already in use.

**Emission reductions**

Emission reductions in year y (ERy) are calculated as follows:

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As such,

**ERy =** 3,223 tCO2 – 1,531 tCO2 - 0 tCO2

**= 1,692 tCO2/y**

B.6.2 Data and parameters fixed ex ante

**SDG13**

|  |  |
| --- | --- |
| Data/parameter | TDLj,y |
| Unit | % |
| Description | Average technical transmission and distribution losses for providing electricity to source j |
| Source of data | In case of scenario B and scenario C, case C.II, assume TDLj/k/l,y = 0 as a simplification. In case of other scenarios (scenario A and scenario C, cases C.I and C.III), choose one of the following options:    1. Use annual average value based on the most recent data available within the host country;  2. Use as default values of 20% for:  (a) project or leakage electricity consumption sources;  (b) baseline electricity consumption sources if the electricity consumption by all project and leakage electricity consumption sources to which scenario A or scenario C (cases C.I or C.III) applies is larger than the electricity consumption of all baseline electricity consumption sources to which scenario A or scenario C (cases C.I or C.III) applies;  3. Use as default values of 3% for:  (a) baseline electricity consumption sources;  (b) project and leakage electricity consumption sources if the electricity consumption by all project and leakage electricity consumption sources to which scenario A or scenario C (cases C.I or C.III) applies is smaller than the electricity consumption of all baseline electricity consumption sources to which scenario A or scenario C (cases C.I or C.III) applies |
| Value(s) applied | 20 |
| Choice of data or Measurement methods and procedures | As the electricity consumed is from the grid, option 2 above (default value of 20%) is chosen for TDLj,y |
| Purpose of data | To estimate Project Emissions from electricity consumption |
| Additional comment | NIL |

|  |  |
| --- | --- |
| Data/parameter | NCVFF,i |
| Unit | GJ/tonne |
| Description | Average net calorific value of fossil fuel type i combusted, GJ per unit volume or mass unit |
| Source of data | Value taken from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1, Table 1.2, Residual Fuel Oil and converted into the relevant unit (GJ/Tonne).  <https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf> |
| Value(s) applied | 40.4 |
| Choice of data or Measurement methods and procedures | Heavy fuel oil falls under the category of Residual Fuel Oil |
| Purpose of data | To estimate Baseline CO2e Emissions |
| Additional comment | NIL |

|  |  |
| --- | --- |
| Data/parameter | EFCO2,FF ,i, y |
| Unit | t CO2e/GJ |
| Description | CO2 emission factor for the fossil fuel |
| Source of data | 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.2, Residual Fuel Oil[[8]](#footnote-9) |
| Value(s) applied | 0.0774 |
| Choice of data or Measurement methods and procedures | As per the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” |
| Purpose of data | To estimate Baseline CO2e Emissions |
| Additional comment | N/A |

|  |  |
| --- | --- |
| Data/parameter | EFEL,j |
| Unit | tCO2e/MWh |
| Description | Emission Factor for electricity generation for source j in year y. |
| Source of data | “2017 CDM Electricity Baseline for Malaysia” study by Malaysian Green Technology Corporation |
| Value(s) applied | 0.585 |
| Choice of data or Measurement methods and procedures | Value derived using TOOL 07 (version 07.0) |
| Purpose of data | Estimation of Project Emissions |
| Additional comment | N/A |

|  |  |
| --- | --- |
| Data/parameter | FC,FF,BL,i |
| Unit | kg |
| Description | Average annual baseline fossil fuel consumption value for fuel type i, using volume or weight units |
| Source of data | Based on average of the immediately prior three-year historical fossil fuel consumption data, as recorded from receipts/invoices for fossil fuel (Heavy fuel oil) purchases |
| Value(s) applied | 1,030,678 |
| Choice of data or Measurement methods and procedures | N/A |
| Purpose of data | Calculation of Baseline Emissions |
| Additional comment | N/A |

|  |  |
| --- | --- |
| Data/parameter | Pprod,BL |
| Unit | kg |
| Description | Annual average historic baseline production in units of weight |
| Source of data | Based on average of the immediately prior three-year historical product output data, as recorded from receipts/invoices. |
| Value(s) applied | 4,498,971 |
| Choice of data or Measurement methods and procedures | N/A |
| Purpose of data | Calculation of Baseline Emissions |
| Additional comment | N/A |

**SDG 8**

|  |  |
| --- | --- |
| Data/parameter | JobBL |
| Unit | Number of jobs |
| Description | Number of jobs in the baseline |
| Source of data | JTS Engineering Sdn Bhd Accounts and Human Resource Department “JTS Management Staff List 2018” |
| Value(s) applied | 28 |
| Choice of data or Measurement methods and procedures | N/A |
| Purpose of data | Calculation of SDG 8’s Baseline |
| Additional comment | N/A |

**SDG 11**

|  |  |
| --- | --- |
| Data/parameter | PPMBL |
| Unit | mg/m3 |
| Description | Level of particulate matter in the air of the project activity |
| Source of data | JTS Stack Annual Monitoring Reports |
| Value(s) applied | 10 |
| Choice of data or Measurement methods and procedures | As per minimum requirements stated by Malaysia’s Environmental Quality Act’s mandate on Secondary Aluminium where by Total PM has to equate to no more than 10mg/m3 |
| Purpose of data | Calculation of SDG 11’s Baseline |
| Additional comment | N/A |

B.6.3 Ex ante estimation of SDG Impact

>>

Table 19: Parameters for ex ante estimation of SDGs impact.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Sustainable Development Goal (SDG)** | **Implementation Method** | **Ex-Ante Parameters** | **Justification and Quantitative Indicator** |
| 1 | SDG 11 – Sustainable Cities and Communities | The project activity will reduce the amount of air pollution (Particulate Matter) being released into the atmosphere/working environment.  This will be quantified by the reduction in PM levels that is released into the atmosphere from the chimney furnace. This will be the difference between PM levels in the baseline (PMbaseline) and in project scenario (PMproject) | PPMBL | The quantitative indicator is taken as the mandated levels of total PM for Secondary Aluminium, as per Malaysia’s Environmental Quality Act, document: Environmental Quality (Clean Air) Regulations 2014. |
| 2 | SDG 8: Decent Work and Economic Growth | Number of males and females employed by the project will be reported for each monitoring period based on keeping book and be cross checked by the labor contracts and training records of employees. For ex ante estimation, 18 jobs are created including 9 males and 9 females. | JobBL | The actual average monthly salary will be determined by the record keeping book and cross checked by the salary slips. |
| 3 | SDG 13 – Climate Action | The implementation of the project activity contributes to SDG 13, by ensuring that there is sustainable management and efficient use of natural resources. This can be quantified and measured by the volume amount of HFO that is being avoided from being used in the furnace of the facility each year. This HFO fuel is replaced with NERADO oil. | NVCFF,I, EFCO2,FF,I, EFEL,j,y, TDLj,y | The calculation and justification of this indicator will be elaborated on in the section below. |

B.6.4 Summary of ex ante estimates of each SDG Impact

**Table 20: SDG 11 – Sustainable Cities and Communities**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate | Project estimate | Net benefit |
| Year 1 | 10 | 6.5 | 3.5 |
| Year 2 | 10 | 6.5 | 3.5 |
| Year 2 | 10 | 6.5 | 3.5 |
| Year 4 | 10 | 6.5 | 3.5 |
| Year 5 | 10 | 6.5 | 3.5 |
| Year 6 | 10 | 6.5 | 3.5 |
| Year 7 | 10 | 6.5 | 3.5 |
| Year 8 | 10 | 6.5 | 3.5 |
| Year 9 | 10 | 6.5 | 3.5 |
| Year 10 | 10 | 6.5 | 3.5 |
| Total | 35 | | |
| Total number of crediting years | 10 | | |

**Table 21: SDG 8- Decent Work and Economic Growth**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate | Project estimate | Net benefit |
| Year 1 | 28 | 32 | 4 |
| Year 2 | 28 | 32 | 4 |
| Year 3 | 28 | 32 | 4 |
| Year 4 | 28 | 32 | 4 |
| Year 5 | 28 | 32 | 4 |
| Year 6 | 28 | 32 | 4 |
| Year 7 | 28 | 32 | 4 |
| Year 8 | 28 | 32 | 4 |
| Year 9 | 28 | 32 | 4 |
| Year 10 | 28 | 32 | 4 |
| Total | 32 | | |
| Total number of crediting years | 10 | | |

**Table 22: SDG 13 – Climate Action**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate | Project estimate | Net benefit |
| Year 1 | 3,223 | 1,531 | 1,692 |
| Year 2 | 3,223 | 1,531 | 1,692 |
| Year 2 | 3,223 | 1,531 | 1,692 |
| Year 4 | 3,223 | 1,531 | 1,692 |
| Year 5 | 3,223 | 1,531 | 1,692 |
| Year 6 | 3,223 | 1,531 | 1,692 |
| Year 7 | 3,223 | 1,531 | 1,692 |
| Year 8 | 3,223 | 1,531 | 1,692 |
| Year 9 | 3,223 | 1,531 | 1,692 |
| Year 10 | 3,223 | 1,531 | 1,692 |
| Total | 16,920 | | |
| **Total number of crediting years** | 10 | | |
| Annual average over the crediting period | 1,692 | | |

##### B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

**SDG 13**

|  |  |
| --- | --- |
| Data / Parameter | Pprod,y |
| Unit | tons/year |
| Description | The annual net project production of the element process*i* in year *y* |
| Source of data | Invoices/receipts, inventory records |
| Value(s) applied | 4,498.97 |
| Measurement methods and procedures | Measurement results shall be cross-checked with records for sold production (e.g. invoices/receipts), inventory records and by performing mass measurements using annually 3rd party Calibrated weigh bridge. |
| Monitoring frequency | Continuous |
| QA/QC procedures | N/A |
| Purpose of data | Estimation of CO2e emission reductions |
| Additional comment | There would be maintenance of records to monitor the relative production of base metal based on the type of fuel that was used during the production. |

|  |  |
| --- | --- |
| Data / Parameter | ECPJ,j,y |
| Unit | MWh/y |
| Description | Quantity of electricity consumed in year y |
| Source of data | Utility Bills from Tenaga (Malaysia power provider) |
| Value(s) applied | 2,181.20 |
| Measurement methods and procedures | Measurements are undertaken using calibrated energy meters.  As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” |
| Monitoring frequency | Monthly |
| QA/QC procedures | The electricity readings are provided by TENAGA Malaysia, which is a government utilities provider. The sub-stations conduct monthly maintenance and readings in accordance with the Malaysian government regulations. |
| Purpose of data | Calculation of Project Emissions |
| Additional comment | N/A |

**SDG 8**

|  |  |
| --- | --- |
| Data / Parameter | JobPJ |
| Unit | Number of Jobs |
| Description | Number of jobs after implementation of project activity |
| Source of data | JTS Engineering Sdn Bhd Accounts and Human Resource Department |
| Value(s) applied | 32 |
| Measurement methods and procedures | Official (redacted) payslips provided by JTS Engineering Sdn Bhd Accounts and Human Resource Department |
| Monitoring frequency | Continuously, yearly |
| QA/QC procedures | N/A |
| Purpose of data | Calculation of SDG 8’s Project Scenario |
| Additional comment | N/A |

|  |  |
| --- | --- |
| Data / Parameter | Annual SalaryPJ,i,j |
| Unit | RM/person |
| Description | Annual drawn salary per person by type:  i: Production Workers  j: Admin & Management |
| Source of data | JTS Engineering Sdn Bhd Accounts and Human Resource Department |
| Value(s) applied | Production Workers: 2,824 RM/person  Admin & Management: 5,632 RM/person |
| Measurement methods and procedures | Official (redacted) payslips provided by JTS Engineering Sdn Bhd Accounts and Human Resource Department |
| Monitoring frequency | Continuously, yearly |
| QA/QC procedures | N/A |
| Purpose of data | Calculation of SDG 8’s Project Scenario |
| Additional comment | N/A |

**SDG 11**

|  |  |
| --- | --- |
| Data / Parameter | PPMPJ |
| Unit | PPM |
| Description | Amount of PM released once project activity/fuel switch has been implemented |
| Source of data | 3rd party accredited labs that will do mandatory quarterly stage emissions monitoring |
| Value(s) applied | To be measured |
| Measurement methods and procedures | PM Levels will be measured quarterly by 3rd party accredited labs. |
| Monitoring frequency | Quarterly |
| QA/QC procedures | N/A |
| Purpose of data | To estimate project contribution to SDG 3 |
| Additional comment | NIL |

B.7.2 Sampling plan

>>

N/A

B.7.3 Other elements of monitoring plan

>>

The sources of NERADO are from crops (coconut acid oil, crude palm oil and sludge palm oil from oil palm) that are integral to Malaysia’s agriculture practice. There is no special allocation of land for growing crops specific for JTS’ project use, and the croplands JTS were existent prior to this. JTS has designed their system to make sure they use what is available in the market without the need for land dedicated or re-purposed for their specific use in the project activity.

As part of complying with deviation request approval from Gold Standard, JTS will include the following parameters to be monitored in the monitoring plan:

1. Monitoring the renewability of biomass used in project activity.
2. Monitor that the project activity does not result in diversion of existing biomass resources.
3. Monitor that the project activity only makes use of degraded land.

These parameters will either be monitored or determined for their applicability to the project activity throughout the crediting period. The applicable parameters will be monitored and justified using available data and literature throughout the crediting period.

The four main producers are IOI, PGEO, Felda and Sime Darby of whom JTS (based in Pasir Gudang, Johor) get their Palm oil and palm oil by-product (SPO) from are all RSPO registered. PGEO, Felda and IOI are certified in Pasir Gudang while Sime Darby is in Selangor.

Any users (ie. JTS) of CPO or SPO must also be registered and must have a permit by Malaysia Palm Oil Board.

The RSPO Certification of the palm oil products producers/suppliers will be monitored annually.

In addition to the monitoring plan, there would be maintenance of records to monitor the relative production of base metal based on the type of fuel that was used during the production.

**SDG 13 Climate Action**

The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for the fuel switch project being implemented in Johor, Malaysia. The monitoring plan describes the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data results is with the CME. CME proposes the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises the following members.

Diagram

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Figure 5: Organisational structure of monitoring.

**Table 23: Organizational structure for monitoring**

|  |  |
| --- | --- |
| **Designation** | **Responsibilities** |
| Head / Manager | ● Overall functioning and maintenance  ● Holds complete control over monitoring aspects pertaining to the project |
| Plant / Site In-Charge | Maintains the data records, reliability of data (calibration of equipment) and ensures completeness of data such as:  ● Recording  ● Verification  ● Storage of Data |
| Shift In-Charge / Site Engineer | Responsible for day-to-day maintenance of:  ● Data collection  ● Logbook for monitored data  ● Storage of Data |

**QA & QC Procedures to be followed**

All Incoming Raw Material, And Fuels Are Recorded By

* + - 1. Site Supervisor
      2. EHS Officer
      3. EHS supervisor
      4. Facility Specialist

**Data Recording and Storage**

The Shift In-charge and Plant In-charge will be responsible for recording and monitoring data (amount of soot levels, net production of aluminium products from the recycling facility etc), as well as maintaining the electronic database each month.

SW 501 (Furnace Dust collector Ash) levels will be monitored by:

Production team site supervisor and production manager

EHS TEAM – EIMAS certified competent persons and assistant admin manager

Net production of aluminium ingots/products will be measured by :

* + - 1. Site assistant supervisor, factory production manager
      2. Admin and Finance department – admin head and admin assistant (EIMAS certified competent person)

**Personnel training**

In order to ensure a proper functioning of the project activity and a proper monitoring of emission reductions, the staff will be trained. The Shift In-charge and Plant In-charge will be trained in equipment operation, data recording, operation and maintenance and all procedures in compliance with the monitoring plan

**Emergency preparedness**

The project activity will not result in any unidentified activity that can result in emissions from the project activity. Therefore, emergency preparedness in data monitoring is not required.

#### SECTION C. DURATION AND CREDITING PERIOD

##### C.1. Duration of project

C.1.1 Start date of project

>>

The start date of the project is 27/06/2019.

C.1.2 Expected operational lifetime of project

>>

10 Years

##### C.2. Crediting period of project

C.2.1 Start date of crediting period

>>

01/04/2022C.2.2 Total length of crediting period

>>

As per section 5.1.1 of the GS4GG Principle and Requirements, the project is seeking for a 5-year crediting period with one renewable cycle (i.e., up to 10 years crediting period), with the first 5-year crediting period from 01/04/2022to 31/03/2027and the second renewed 5 -year crediting period from 01/04/2027to 31/03/2032.

#### SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

##### D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#_35nkun2).

##### D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

**Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?**

As per Gold Standard Gender Policy, “Foundational gender-sensitive requirement” a project must “do no harm “and should address safeguards to prevent or mitigate adverse impacts on women or men and girls and boys. The project will not discriminate against any gender and will mitigate adverse impact, if any, during the gender analyses.

This can be identified by JTS’s Organization and Gender Distribution Chart below:

Table 24: JTS’s organisation and gender distribution.

|  |  |  |
| --- | --- | --- |
| **Diversity and Gender Breakdown of Staff at JTS Engineering** | | |
| **Race** | **Headcount** | **Percentage %** |
| **Chinese** | 5 | 15.63 |
| **Malay** | 6 | 18.75 |
| **Indian** | 9 | 28.13 |
| **Myanmarese** | 12 | 37.50 |
|  |  |  |
| **Gender** | **Headcount** | **Percentage %** |
| **Male** | 24 | 75 |
| **Female** | 8 | 25 |
|  |  |  |
| **Gender on Board of Director** | **Headcount** | **Percentage %** |
| **Male** | 2 | 66.6 |
| **Female** | 1 | 33.3 |
|  |  |  |
| **Gender in Management** | **Headcount** | **Percentage %** |
| **Male** | 10 | 55.6 |
| **Female** | 8 | 44.4 |

A blue and yellow pie chart

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Figure 6: JTS gender distribution (Staff)

A chart with a yellow and blue circle

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Figure 7: JTS gender distribution (Board of Directors).

A yellow and blue pie chart

Description automatically generated

Figure 8: JTS gender distribution (Management).

The project will also ensure gender-sensitive approaches in stakeholder consultation where equitable information sharing with women and men stakeholders will be upheld.

**Question 2 - Explain how the project aligns with existing country policies, strategies and best practices**

The project does not discriminate against gender and aligns itself with Malaysia’s existing policies on gender equality. Women are appointed to various decision-making levels either in the public or private sectors. In the Malaysian Constitution, protection of women is a concurrent matter under the Ninth Schedule whereby the federal and the state governments have legislative and executive powers to enact law and policies. The Malaysian Government, through the Ministry of Women, Family and Community Development, has established measures to elevate women in various sectors. All states in Malaysia have an executive councilor or Exco in charge of women affairs. [[9]](#footnote-10)Malaysia is also in the process of drafting its Gender Equality Bill, which seeks to level the economic playing field. A special task force was set a year ago for this purpose and includes the Foreign Ministry, Malaysian Islamic Development Department, academics, experts, and other stakeholders. This bill was proposed in line with Malaysia’s commitment to the Convention on Elimination of Discrimination Against Women (CEDAW) and includes salient features such as setting up of a Gender Equality Commission.

The project complies with existing policies and regulations on Gender Equality in Malaysia and has incorporated a robust Gender Equality Policy at an organisational level. The project does not discriminate on the basis of gender as mentioned in Article 8 (2) of the Federal Constitution. JTS also complies with the Code of Practice on the Prevention and Handling of Sexual Harassment in the Workplace enacted on 1 March 1999, which contains guidelines to employers on the establishment and implementation of in-house preventive and redress mechanisms to prevent and eradicate sexual harassment at the workplace.

**Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?**

The gender distribution charts, there is a good mix of both genders throughout the organization structure of JTS, therefore an Expert is not required for the Gender Safeguarding Principles & Requirements.

**Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?**

Similar to the reasoning above, there is no need for an Expert to assist with Gender issues at the Stakeholder Consultation.

#### SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Pleaserefer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

##### E.1 Summary of stakeholder mitigation measures

>>

The stakeholders are defined as the public, including individuals (villagers in the vicinity), groups or communities (other institutions, NGO’s, etc), affected, or likely to be affected, by the proposed CDM project activity. Identified stakeholders were requested personally by the project proponent to participate in the stakeholder consultation meeting to discuss any potential concerns regarding the project activity. In this regard, an invitation letter comprising a brief summary of the project and the purpose of the said consultation was sent to the stakeholder 30 days before the stakeholder meeting and individual signature of the stakeholder was taken after reading the invitation to them in local language.

As such, the Local Stakeholder Consultation (LSC) was held on **31st May 2021** at JTS’s Offices as a ‘hybrid’ consultation, whereby participants could join the consultation both virtually and physically. During the consultation, participants were briefed on the project, the Gold Standard, as well as the importance of a local stakeholder consultation being held.

During the consultation, participants were able to comment and provide feedback on the project, and JTS was able to provide further explanation on how the project worked and affected stakeholders directly. After the physical meeting with local stakeholders were conduct, there was a further stakeholder feedback round which lasted for 30 days.

Comments that came in during the stakeholder feedback round portion of the LSC were all positive. An example of a few are as follows:

Table 25: Comments during LSC.

|  |  |
| --- | --- |
| **No.** | **Question** |
| **1** | How much HFOs have you consumed per month? How much of the HFOs are you converting to NERADO? What is the reduction rate? |
| **2** | What is the NOx and SOx reductions in PPM? |
| **3** | How is the modification on furnace or site done? |
| **4** | Is the project scalable? |
| **5** | What is the estimated amount of CO2 reduced in a year? |

The final attendance of the LSC was a total of 28 participants, with the following attendance breakdown:

* 10 Physical Participants
* 18 Virtual Participants

Of the 28 participants the gender breakdown is as follows:

* 13 Male
* 15 Female

There were no adverse comments received from the stakeholders and the net beneficial effects of the project activity was acknowledged by the stakeholders present. As all comments were very positive about the project, no further action is required.

##### E.2 Final continuous input / grievance mechanism

Table 26: Final continuous input / grievance mechanism

|  |  |
| --- | --- |
| Method | Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers. |
| Continuous Input / Grievance Expression Process Book (mandatory) | A feedback portal has been set up on the JTS website to allow stakeholders that come in after the development of the project to give feedback throughout the crediting period of the project activity.  Taking into consideration that the Local Stakeholder Consultation was conducted after the start date of the project, any continuous inputs from stakeholders can still be sent through the company’s website-feedback portal which would collect any feedback and input raised. Any feedback or input would be followed up within 7 working days. In the event of any feedback, input or grievances with significant impact raised by any stakeholder, the design and implementation of the project activity allowed for the conversion back into the baseline scenario (the retrofitted equipment allows for the use of both baseline scenario fuel type and project scenario fuel type) to allow for any grievances to be addressed before resuming the project activity |
| GS Contact (mandatory) | [help@goldstandard.org](mailto:help@goldstandard.org) |
| Other | [info@jts.com.my](mailto:info@jts.com.my), <http://www.jts.com.my/usr/contactus.aspx?pgid=6&lang=en> |

### Appendix 1 - Safeguarding Principles Assessment

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#check1) above. Please refer to the instructions in the [Guide to Completing](https://globalgoals.goldstandard.org/t-prereview-design-document/) this Form.

|  |  |  |
| --- | --- | --- |
| **SOCIAL SAFEGUARDING PRINCIPLES** | | |
| Reference requirement | Question | Response |
| **P.1 |Human Rights** | | |
| P.1.1.1 | | Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights? | ☐ YES  ☒ NO |
| P.1.1.1 | | Is the project involved or complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights? | ☐ YES  ☒ NO |
| P.1.1.2 | | Have local communities or individuals raised human rights concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)? | ☐ YES  ☒ NO |
| P.1.1.3 | | Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights? | ☐ YES  ☒ NO |
| P.1.1.3 | | Does this project undermine national or regional measures for the realisation of the right to development? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to: | | |
| P.1.1.1 | | adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalised groups? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.1.1.2 | | inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups, including persons with disabilities? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.1.1.3 | | restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalised individuals or groups, including persons with disabilities? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.1.1.3 | | exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| Briefly describe below how the project incorporates a human rights-based approach. | | |
| The project respects internationally proclaimed human rights and is not complicit of human rights abuses of any kind as defined in the Universal Declaration of Human Rights. The project also does not discriminate with regards to participation and inclusion.  As detailed in section A.6, the project does not discriminate on the basis of gender nor does it discriminate on the basis of inclusion and participation. | | |
| **P.2 |Gender Equality and Women’s Empowerment** | | |
| P.2.1.1 | | Have women’s groups/leaders raised gender equality concerns regarding the project, (e.g., during the stakeholder engagement process, grievance processes, public statements)? | ☐ YES  ☒ NO |
| P.2.1.2 | | Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work? | ☐ YES  ☒ NO |
| P.2.1.2 | | Does the project prevent men and women from having equal opportunities to participate in identified tasks and activities, whether through paid work, volunteer work, or community contributions, as appropriate? | ☐ YES  ☒ NO |
| P.2.1.2 | | Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status? | ☐ YES  ☒ NO |
| P.2.1.2 | | Is information about project objectives being communicated in a way that is inappropriate for the local context and not tailored to the methods of understanding of both women and men, which could hinder their participation? | ☐ YES  ☒ NO |
| P.2.1.3 | | Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment? | ☐ YES  ☒ NO |
| P.2.1.4 | | Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to: | |  |
| P.2.1.1 | | adverse impacts on gender equality and/or the situation of women and girls? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.2.1.1 | | exacerbation of risks of gender-based violence? For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc. | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.2.1.2 | | reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.2.1.2 | | limitations on women’s ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?  For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well-being. | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| Briefly describe below how the project is addressing any identified risk to gender equality and women’s empowerment. | | |
| The Project Activity does not directly or indirectly reinforce gender-based discrimination and shall not lead or contribute to adverse impacts on gender equality and/or the situation of women in terms of:   1. Sexual harassment and/or any forms of violence against women. 2. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. 3. Restriction of women’s rights or access to resources.   The project will instead:   1. Recognize women’s ownership rights regardless of marital status – adopt project measures where possible to support women's access to inherit and own land, homes, and other assets or natural resources. (where applicable) 2. Apply the principles of non-discrimination, equal treatment, and equal pay for equal work. 3. Implement a Project, paid, volunteer work or community contributions will be organized to provide the conditions for equitable participation of men and women in the identified tasks/activities where applicable. 4. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. 5. Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.   Section A.6 elaborates how the project activity keeps in mind women’s rights and ensures gender equality. | | |
| **P.3 |Community Health AND Safety** | | |
| P.3.1.1 | | Does the project involve potential risks to the health and safety of affected communities during its life cycle? | ☐ YES  ☒ NO |
| P.3.1.2 | | Does the project involve any potential risks to the workers' safety and health? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| *Please add text here….* | | |
| Would the project potentially involve or lead to: | | |
| P.3.1.1 | | construction and/or infrastructure development (e.g., roads, buildings, dams)? | ☐ YES  ☒ NO |
| P.3.1.2 | | air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.3.1.2 | | harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.3.1.2 | | risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.3.1.2 | | transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., explosives, fuel and other chemicals during construction and operation)? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.3.1.2 | | adverse impacts on ecosystems and ecosystem services relevant to communities’ health (e.g., food, surface water purification, natural buffers from flooding)? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| Briefly describe below how the project is addressing any identified risk related to community health and safety. | | |
| The project does not increase the health risks to the community and workers, but rather decreases the adverse effects. With reduced burning of heavy fuel oil fossil fuels, the level of smoke and soot is reduced, and this will lead to better health conditions for the workers and the community. | | |
| **P.4 |Cultural Heritage, Indigenous People, Displacement and Resettlement** | | |
| *P.4.1 |Sites of Cultural and Historical Heritage* | | |
| P.4.1.1 | | Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| NA | | |
| Would the project potentially involve or lead to: | | |
| P.4.1.1 | | activities adjacent to or within a cultural heritage site? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.1.1 | | significant excavations, demolitions, movement of earth, flooding or other environmental changes? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.1.1 | | alterations to landscapes and natural features with cultural significance? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.1.1 | | adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts) | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.1.2 | | utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage  for commercial or other purposes? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.1.2 | | If answer to question above is “YES” or “POTENTIALLY” - are the communities made aware of their right under the law, scope and nature of proposed development and its potential consequences? | ☐ YES  ☐ NO  ☒ NA |
| P.4.1.3 | | If answer to question above is “YES” - does the project provide equitable sharing of benefits from commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions? | ☐ YES  ☐ NO  ☒ NA |
| P.4.1.4 | | If answer to question above is “YES” - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| P.4.1.4 | | If answer to question above is “YES”, has project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.4.2 |*Forced Eviction and Displacement* | | |
| P.4.2.1 | | Does the project involve any risks related to involuntary relocation of people? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to: | | |
| P.4.2.1 | | risk of forced evictions or involuntary relocation of people? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.2.2 | | temporary or permanent and full or partial physical displacement (including people without legally recognisable claims to land)? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.2.2 | | economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.2.2 | | If answer to question above is “YES” or “POTENTIALLY”,   * has the project developed Resettlement Action Plan or Livelihood Action Plan in consultation and agreement with affected individual, group or community? * has the project integrated Resettlement Action Plan or Livelihood Action Plan into the Project design? | ☐ YES  ☐ NO  ☒ NA |
| P.4.2.3 | | If answer to question above is “YES” - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| P.4.2.3 | | If answer to question above is “YES”, have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.4.3 |Land tenure and other rights | | |
| P.4.3.1 | | Does the project involve any risks related to identifying and managing legitimate tenure rights that may be affected by the project? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to: | | |
| P.4.3.1 | | impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.3.1 | | uncertainties with regards to land tenure, access rights, usage rights or land ownership?  Examples include, but are not limited to water access rights, community-based property rights and customary rights. | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.3.2 | | Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations? | ☐ YES  ☐ NO  ☒ NA |
| P.4.3.2 | | Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders? | ☐ YES  ☐ NO  ☒ NA |
| P.4.3.3 | | Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary? | ☐ YES  ☒ NO  ☐ NA |
| P.4.3.4 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| P.4.3.4 | | If answer to question above is “YES”, have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder? | ☐ YES  ☐ NO  ☒ NA |
| P.4.3.5 | | Have project developer in consultation with stakeholders established a functioning mechanism to receive, process, resolve, communicate and record grievances? | ☒ YES  ☐ NO  ☐ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *Please add text here….* | | |
| P.4.4 |Indigenous peoples | | |
| P.4.4.1 | | Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to: | | |
| P.4.4.1 | | affect areas where indigenous peoples are present (including project area of influence) | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.4.1 | | affect areas, land and territory claimed by indigenous peoples? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.4.1 | | impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.4.7 | | If answer to above questions is ’’YES’’ or “POTENTIALLY”,   * Is it determined that the proposed project may affect the rights, lands, resources, or territories of indigenous people? * Has an "Indigenous People Plan" (IPP) or "Indigenous People Plan Framework" been elaborated and included in the project documentation? * Was the plan developed in accordance with the effective and meaningful participation of indigenous peoples and in accordance with UNDP Guidelines? | ☐ YES  ☐ NO  ☒ NA |
| P.4.4.3 | | risk of forcibly removing indigenous people from their lands and territories? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.4.4 | | utilisation and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?  Consider, and where appropriate ensure, consistency with the answers under Principle 4.1 above | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.4.4.5 |  P.4.4.6 | | If answer to question above is “YES” or “POTENTIALLY”   * Did the project obtain free, prior and informed consent from indigenous people before taking their cultural, intellectual, religious, and/or spiritual property? * Does the project ensure that the indigenous people receive an equitable sharing of benefits resulting from the use of their traditional knowledge and practices? ? * Does the project ensure that the sharing of benefits resulting from the use of indigenous peoples' traditional knowledge and practices is culturally appropriate and inclusive? * Does the project ensure that the provision of equitable sharing of benefits does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions, and housing? | ☐ YES  ☐ NO  ☒ NA |
| P.4.4.8 | | Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives? | ☐ YES  ☐ NO  ☒ NA |
| P.4.4.8 | | Has a grievance mechanism not been established at the beginning of programme or project implementation with due consideration given to customary dispute settlement mechanisms among the Indigenous Peoples concerned and will it remain operational throughout the project cycle? | ☐ YES  ☐ NO  ☒ NA |
| P.4.4.9 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| P.4.4.9 | | If answer to question above is “YES”, have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| **P.5 |Corruption** | | |
| P.5.1.1 | | Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects? | ☐ YES  ☒ NO |
| P.5.1.1 | | Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| **ECONOMIC SAFEGUARDING PRINCIPLES** | | |
| **P.6 |Economic Impacts** | | |
| P.6.1 |Labour Rights and Working Conditions | | |
| P.6.1.1 | | Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor? | ☐ YES  ☒ NO |
| P.6.1.1 | | Does the project violate any labor or health and safety laws, international obligations, or ILO conventions? | ☐ YES  ☒ NO |
| P.6.1.2 | | Does the project violate the principles of equal opportunity and fair treatment in its employment decisions? | ☐ YES  ☒ NO |
| P.6.1.3 | | Does the project violate national laws, if available regarding non-discrimination in employment? | ☐ YES  ☒ NO |
| P.6.1.4 |  P.6.1.5 | | Does the project allow child labor? | ☐ YES  ☒ NO |
| P.6.1.7 |  P.6.1.8 | | Does the project have insufficient processes and measures in place to ensure the safety and health of project workers? | ☐ YES  ☒ NO |
| P.6.1.9 | | Does the project have insufficient measures to safeguard and support vulnerable project workers, such as women, people with disabilities, migrant workers, and young workers, and to prevent any kind of harassment, abuse, bullying, or exploitation, including gender-based violence (GBV)? | ☐ YES  ☒ NO |
| P.6.1.10 | | Does the project have no grievance mechanism available for workers to voice workplace concerns? Is information about this mechanism not provided to workers at the time of recruitment, or is it not easily accessible? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project potentially involve or lead to:  **(**note: applies to both project and contractor workers) | | |
| P.6.1.1 | | use of forced labour? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.1 | | working conditions that do not meet national labour laws and international commitments? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.1 | | working conditions that may deny freedom of association and collective bargaining? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.1 | | absence of documented working agreements with all individual workers  *if such agreements do not exist, or do not address working conditions and terms of employment, the project developer shall provide reasonable working conditions and terms of employment.* | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.1 | | use of migrant workers?  *if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.* | ☒ YES  ☐ POTENTIALLY  ☐ NO |
| P.6.1.1 | | having no arrangements for basic services[[10]](#footnote-11) for workers?  *the project developer shall put in place and implement policies on the quality and management of the accommodation and provision of basic services in a manner consistent with the principles of non-discrimination and equal opportunity. Workers’ accommodation arrangements should not restrict workers’ freedom of movement or of association* | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.2 | | any form of discrimination or harassment based on factors unrelated to job requirements, such as gender, race, nationality, ethnicity, social or indigenous origin, religion or belief, disability, age, or sexual orientation? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.2 | | any form of discrimination in any aspect of employment, such as recruitment, compensation, working conditions, training, job assignment, promotion, termination, or discipline? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.2 | | harassment, intimidation, and/or exploitation, especially in regard to women? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.3 | | discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.4 | | use of child labour? (including third-party engaged workers) | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.1.4 | | inadequate and verifiable mechanisms for age verification? | ☐ YES  ☒ NO |
| P.6.1.7 | | no processes and measures in place for the safety and health of project workers? | ☐ YES  ☒ NO |
| P.6.1.7 | | No provision of safety and health training provisions, including on the proper use and maintenance of personal protective equipment conducted by competent persons and the maintenance of training records? | ☐ YES  ☒ NO |
| P.6.1.7 | | No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths? | ☐ YES  ☒ NO |
| P.6.1.8 | | occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle? | ☐ YES  ☒ NO |
| P.6.1.9 | | No measures to protect vulnerable project workers from harassment, exploitation, and gender-based violence (GBV)? This includes women, people with disabilities, migrant workers, and young workers. | ☐ YES  ☒ NO |
| P.6.1.10 | | No grievance mechanism available for workers to voice workplace concerns. | ☐ YES  ☒ NO |
| P.6.1.11 | | No measures for due diligence and the establishment of policies and procedures to manage and monitor the performance of third-party employees in the project? | ☐ YES  ☒ NO |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| (a) The project developer ensures that there is no forced labour and all employment is in compliance with Malaysia’s Employment Act (1955), which states that “Contracts of service not to restrict rights of employees to join, participate in or organize trade unions”.  (b) All these rights are guaranteed to the worker according to local legislation i.e. Employment Act 1955.  (c) The prohibition of child labour in Malaysia rests in the [Children and Young Persons (Employment) Act 1966](http://www.agc.gov.my/agcportal/uploads/files/Publications/LOM/EN/Act%20350%20-%20Children%20and%20Young%20Persons%20(Employment)%20Act%201966.pdf). “*No child or young person shall be, or be required or permitted to be, engaged in any hazardous work, or any employment other than those specified in this section.”*  A child is defined as any individual younger than 15 years old. The exceptions are:   1. Light work in relation to family-run or family-owned businesses 2. Work in the field of public entertainment 3. Work that is sponsored by the government within a school or institution 4. Contracted apprenticeships that are approved by authorities   This project does not fall under these exceptions and will not hire any child labour. | | |
| P.6.2 |Negative Economic Consequences | | |
| P.6.2.1 | | Is there a risk of project failure during implementation or after project certification due to a lack of financial resources? | ☐ YES  ☒ NO |
| P.6.2.2 | | Does the project have potential negative impacts or pose a risk to the local economy? | ☐ YES  ☒ NO |
| P.6.2.2 | | Are there any potential risks or negative impacts this project may have on vulnerable or marginalised social groups, despite the benefits it may bring? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| **Would the project involve or lead to:** | | |
| P.6.2.2 | | economic impacts (negative/detrimental) to the local economy? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.6.2.2 | | negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.7 |**Climate and Energy** | | |
| P.7.1 |GHG Emissions | | |
| P.7.1.1 | | Does the project have a risk of increasing greenhouse gas emissions over the Baseline Scenario? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.7.1.1 | | increase greenhouse gas emissions over the Baseline Scenario? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.7.2 |Energy supply | | |
| P.7.2.1 | | Does the project pose a risk to the availability and reliability of energy supply to other users? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.7.2.1 | | negative impact on the availability and reliability of energy supply to other users? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| **P.8 |Water** | | |
| P.8.1 |Impact on Natural Water Patterns/Flows | | |
| P.8.1.1 | | Does the project increase water usage to a level that will not allow for the maintenance of environmental flows? | ☐ YES  ☒ NO |
| P.8.1.1 | | Does the project result in the discharge of wastewater that does not meet the required standard for beneficial reuse and could therefore negatively impact the environmental flow? | ☐ YES  ☒ NO |
| P.8.1.1 | | Does the project have the potential risk to exceed the rate of recharge for the groundwater source? | ☐ YES  ☒ NO |
| P.8.1.1 | | Does the project involve any processes or activities that could contaminate the groundwater and render it unsuitable for use? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.8.1.1 | | affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.8.1.1 | | Wastewater discharge of quality that does not meet the required standard for beneficial reuse? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.8.1.1 | | significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.8.1.2 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.8.2 |Erosion and/or Water Body Instability | | |
| P.8.2.1 | | Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.8.2.2 |  P.8.2.5 | | negatively impact on the catchment area?  *If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary.* | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.8.2.6 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| **P.9 |Environment, ecology and land use** | | |
| P.9.1 |Landscape Modification and Soil | | |
| P.9.1.1 |  -  P.9.1.3 | | Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project?  *If yes, the project shall maintain healthy soils by minimising negative impacts on soil health, productivity, structure, and water retention. Steps to minimise soil degradation include crop rotation, composting, using N-fixing plants, and reducing tillage and ecologically harmful substances.* | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.1.4 | | production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.1.4 | | if answer to above question “yes” or “potentially”, does project adopt appropriate and culturally sensitive sustainable resource management practices? | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.2 |Vulnerability to Natural Disaster | | |
| P.9.2.1 | | Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| NA | | |
| Would the project involve or lead to: | | |
| P.9.2.2 | | any potential risks that require emergency preparedness and response planning? | ☐ YES  ☐ POTENTIALLY  ☐ NO |
| P.9.2.2 | | if answer to above question “yes” or “potentially”, did the project developer disclose appropriate information about emergency preparedness and response to affected communities? | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.3 |Biosafety and Genetic Resources | | |
| P.9.3.1 | | Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.3.1 | | the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.3.1 | | If answer to above question is “yes” has a risk assessment by a competent Expert stakeholder been carried out in accordance with [Annex iii of the Cartagena protocol on biosafety to the convention on biological diversity](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A22002A0731%2801%29)? | ☐ YES  ☐ No  ☒ NA |
| P.9.3.2 | | If answer to above question is “yes” has any risks identified in the risk assessment? | ☐ YES  ☐ No  ☒ NA |
| P.9.3.3 | | Forestry (for example Afforestation/Reforestation) involving GMO planting?  *Note - Forestry projects (for example Afforestation/ Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.* | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.4 |Release of pollutants | | |
| P.9.4.1 | | Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.4.1 | | any potential risk of pollutant release that cannot be avoided? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.4.3 | | If answer to above question is “Yes” or “potentially”, has the project identified all potential pollution sources that may degrade the quality of soil, air, surface, and groundwater in the project area? | ☐ YES  ☐ No  ☒ NA |
| P.9.4.2 | | If answer to above question is “Yes” or “potentially”, do the pollution prevention and control technologies and practices applied during the project life cycle align with national regulations or international best practices? | ☐ YES  ☐ No  ☒ NA |
| P.9.4.3 | | If answer to above question is “Yes”, is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected? | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.5 |Hazardous and Non-hazardous Waste | | |
| P.9.5.1 | | Does the project involve the generation of waste materials (both hazardous and non-hazardous)? | ☐ YES  ☒ NO |
| P.9.5.3 | | Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use? | ☐ YES  ☒ NO |
| P.9.5.5 | | Does the project involve the use of any chemicals or materials subject to international bans or phase-outs? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.5.1 | | the generation and management of waste materials? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.5.1 | | treatment, destruction, or disposal of waste material? | ☐ YES  ☒ No  ☐ NA |
| P.9.5.1 | | If answer to above question is “Yes”, does the project involve an environmentally friendly method that includes appropriate control of emissions and residues resulting from the handling and processing of waste material? | ☐ YES  ☐ No  ☒ NA |
| P.9.5.3 | | risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use? | ☐ YES  ☐ No  ☒ NA |
| P.9.5.3 | | If answer to above question is "yes”, does project has measures in place to address health risks? | ☐ YES  ☐ No  ☒ NA |
| P.9.5.4 | | Involve manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.6 |Pesticides & Fertilisers | | |
| P.9.6.1 | | Does the project involve the use of chemical pesticides? | ☐ YES  ☒ NO |
| P.9.6.5 | | Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous) | ☐ YES  ☒ NO |
| P.9.6.6 | | Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.6.1 | | chemical pesticides use for pest management? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.6.4 | | If answer to question above is “yes” or “potentially”, does project has documented Chemical Pesticides Policy in place? | ☐ YES  ☐ No  ☒ NA |
| P.9.6.5 | | purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.6.5 | | If answer to question above is “yes” or “potentially”, does project has appropriate controls on manufacture, procurement, or distribution and/or use of these chemicals? | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.7 |Harvesting of Forests | | |
| P.9.7.1 | | Does the project have a risk of unsustainable forest management, including timber harvesting? | ☐ YES  ☒ NO |
| P.9.7.1 | | Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken? | ☐ YES  ☒ NO |
| P.9.7.1 | | Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| P.9.8 |Food Security | | |
| P.9.8.1 | | Does the project involve the risk of negatively influencing access to and availability of food for people affected? | ☐ YES  ☒ NO |
| If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.8.1 | | modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.9 | Animal Welfare | | |
| P.9.9.1 | | Does the project involve any risks to animal welfare?  Animal welfare shall be ensured by providing access to water and food, appropriate environment, humane treatment, and staff training. Evidence of mistreatment will be treated as an immediate non-conformity. | ☐ YES  ☒ NO |
| P.9.9.2 | | Does the project involve any potential risk of excessive or inadequate use of veterinary medicines? | ☐ YES  ☒ NO |
| P.9.9.4 | | Does the project involve the risk of administering synthetic growth promoters, including hormones? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.9.1 | | animal husbandry or harvesting of fish populations or other aquatic species?[[11]](#footnote-12) | ☐ YES  ☐ No  ☒ NA |
| P.9.9.1 | | limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.9.3 | | inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases? | ☐ YES  ☐ no  ☒ NA |
| P.9.9.5 | | inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement. | ☐ YES  ☐ No  ☒ NA |
| P.9.9.6 | | inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering? | ☐ YES  ☐ No  ☒ NA |
| P.9.9.7 | | inappropriate spacing per animal and stocking rates per land unit? | ☐ YES  ☐ No  ☒ NA |
| P.9.9.8 | | inadequate measures to address the specific needs of aquatic animals? | ☐ YES  ☐ No  ☒ NA |
| P.9.9.9 | P.9.9.10 | | primary production of living natural resources such as animal husbandry, aquaculture, and fisheries?  If the answer is yes, implement industry-standard sustainable management practices in line with to one or more relevant and credible standards and utilise available technologies. | ☐ YES  ☐ No  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.10 |High Conservation Value Areas and Critical Habitats | | |
| P.9.10.1 | | Does the project have the risk of negatively impacting HCV areas and/or critical habitats? | ☐ YES  ☒ NO |
| P.9.10.2 | | Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas? | ☐ YES  ☒ NO |
| If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.10.1 | | identified habitats as HCV areas and or Critical habitats? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.10.1 | | If answer to above question is “yes”, does the project have any risks that could negatively impact the catchment, project success, and surrounding HCV and ecological assets, as well as any measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting that biodiversity? | ☐ YES  ☐ NO  ☒ NA |
| P.9.10.1 | | If answer to above question is “yes”, is a robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan absent which will make the project unable to achieve net gains of those biodiversity values for which the critical habitat was designated? | ☐ YES  ☐ NO  ☒ N/A |
| P.9.10.2 | | Does the project area or area of downstream impacts have native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.10.2 | | If the answer to the above question is “yes”, will the project have any adverse effects on these areas? | ☐ YES  ☐ No  ☒ NA |
| P.9.10.3 | | If the answer to above question is “yes”, does the project has opportunities to minimise unwarranted conversion or degradation of the habitat and to enhance the habitat as part of its development? | ☐ YES  ☐ No  ☒ NA |
| P.9.10.4 | | Is the project applying Land Use & Forest Activity Requirements and managing a minimum 10% of the project area to protect or enhance the biological diversity of native ecosystems following HCV approach as per the given requirements? | ☐ YES  ☐ No  ☒ NA |
| P.9.10.5 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.11 |Endangered Species | | |
| P.9.11.1 | | Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.11.2 | | distortion of habitats of endangered species? | ☐ YES  ☐ Potentially  ☒ NA |
| P.9.11.2 | | If answer to the above question is “yes”, does the project plan to protect and enhance them? | ☐ YES  ☐ POTENTIALLY  ☐ NO  ☒ N/A |
| P.9.11.2 | | Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? | ☐ YES  ☐ NO  ☒ NA |
| If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |
| P.9.12 |Invasive Alien species | | |
| P.9.12.1 | | Does project introduce any alien species (not currently established in the country or region of the project) into new environments? | ☐ YES  ☒ NO |
| If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. | | |
| *NA* | | |
| Would the project involve or lead to: | | |
| P.9.12.1 | | risk of introducing any alien species with a high risk of invasive behaviour regardless of whether such introductions are permitted under the existing regulatory framework? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.12.1 | | risk of potential accidental or unintended introductions including the transportation of substrates and vectors (such as soil, ballast, and plant materials) that may harbour alien species. | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| P.9.12.2 | | risk of spreading alien species into areas in which they have not already been established? | ☐ YES  ☐ POTENTIALLY  ☒ NO |
| If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. | | |
| *NA* | | |

### Appendix 2 - Contact information of project developer(s)

|  |  |
| --- | --- |
| Organization name | JTS Engineering Sdn Bhd |
| Registration number with relevant authority | 198201008958(88682-X) |
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### Appendix 3 - LUF Additional Information

NA

### Appendix 4 - Design Changes

NA

##### Revision History

|  |  |  |
| --- | --- | --- |
| **Version** | **Date** | **Remarks** |
| 1.5 | 29 June 2023 | Editorial changes to match V2.1 of the Safeguarding Principles Requirements |
| 1.4 | 21 June 2023 | Editorial changes to match V2.0 of the Safeguarding Principles Requirements |
| 1.3 | 14 April 2023 | Integrated the design change memo as annex of the document.  Editorial changes |
| 1.2 | 14 October 2020 | Hyperlinked section summary to enable quick access to key sections  Improved clarity on Key Project Information  Inclusion criteria table added  Gender sensitive requirements added  Prior consideration (1 yr rule) and Ongoing Financial Need added  Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity  Improved Clarity on SDG contribution/SDG Impact term used throughout  Clarity on Stakeholder Consultation information required  Provision of an [accompanying Guide](https://globalgoals.goldstandard.org/standards/TGuide-PreReview_V1.2-Project-Design-Document.pdf) to help the user understand detailed rules and requirements |
| 1.1 | 24 August 2017 | Updated to include section A.8 on ‘gender sensitive’ requirements |
| 1.0 | 10 July 2017 | Initial adoption |

1. Please refer to Appendix 3 for detailed information on LUF projects [↑](#footnote-ref-1)
2. Journal articles were provided as supporting documents for validation. [↑](#footnote-ref-3)
3. Literature review undertaken by JTS was provided as a supporting document during validation. [↑](#footnote-ref-4)
4. JTS declaration form was provided as a supporting document during validation. [↑](#footnote-ref-5)
5. Flux for the steel industry/foundries/smelters [↑](#footnote-ref-6)
6. http://mpoc.org.my/monthly-palm-oil-trade-statistics-2019/ [↑](#footnote-ref-7)
7. http://bepi.mpob.gov.my/index.php/en/production/production-2020/production-of-crude-oil-palm-2020.html [↑](#footnote-ref-8)
8. https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\_Volume2/V2\_2\_Ch2\_Stationary\_Combustion.pdf [↑](#footnote-ref-9)
9. https://www.researchgate.net/publication/332751792\_TOWARDS\_GENDER\_EQUALITY\_IN\_MALAYSIA\_LEGAL\_AND\_POLICY\_PERSPECTIVES [↑](#footnote-ref-10)
10. Basic services requirements refer to minimum space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services. [↑](#footnote-ref-11)
11. 'Involve' means if the project mechanism and/or impact(s) are achieved via changing animal husbandry practices in some way. [↑](#footnote-ref-12)