





# PHILIP MORRIS INTERNATIONAL

# **DECLARATION OF CARBON NEUTRALITY**

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#### 0 Carbon Neutrality declaration

The **Qualifying Explanatory Statement** (QES) contains all the required information on the carbon neutrality of the given subject. All information provided within this report has been **reviewed by a third party** (SGS) and is believed to be correct. If provided with any information affecting the validity of the following statements, this document will be updated accordingly to reflect the affiliate(s) current status towards carbon neutrality. This report is publicly available on a dedicated website <a href="https://www.pmi.com/carbon-neutrality-declaration-2022-cz">https://www.pmi.com/carbon-neutrality-declaration-2022-cz</a>

This is the second declaration of achievement for Philip Morris CR a.s. Kutna Hora affiliate.

Carbon Neutrality of the Scope 1 and 2 emissions under the direct operational control of **Philip Morris CR a.s. Kutna Hora**, manufacturing achieved by **Philip Morris CR a.s** in accordance with PAS2060:2014 at 31st December 2021 with a commitment to maintain to 31st December 2022 for the period commencing 1st January 2022, SGS United Kingdom Limited Certified.

Certification letter from SGS can be found in Annex A.





#### 1 Introduction

This document forms the Qualifying Explanatory Statement (QES) to demonstrate that Philip Morris International (PMI) has achieved **carbon neutrality** for the **Philip Morris CR a.s. Kutna Hora affiliate** manufacturing processes for the period starting 1<sup>st</sup> January 2021 and ending 31<sup>st</sup> December 2021, in accordance with PAS 2060:2014.

This has been achieved through:

- **Continuous carbon emissions reduction** through action plans under PMI direct controls: affiliates and fleet under affiliates' control. (These reductions have been captured as part of the GHG inventory for 2021)
- **Compensation of remaining carbon emissions** for the period commencing 1<sup>st</sup> January 2021 and ending 31<sup>st</sup> December 2021.

This report includes the information which substantiates the declaration of PMI affiliates achievement of carbon neutrality for second application period (under PAS 2060:2014) and commitment on carbon neutrality up to 2025 (6 years, from 2020 the reference year) in compliance with PAS 2060:2014 standard.

PMI affiliates has also set up a **Carbon Management Plan** to **reduce the GHG emissions associated to the manufacturing processes** in order to demonstrate commitment to being carbon neutral in accordance with PAS 2060:2014 standard.

PAS 2060 Information requirement	Information as it relates to PMI affiliates
Entities making PAS 2060 declarations	Philip Morris CR a.s.
	Kutna Hora / Czech Republic
Individual responsible for the evaluation and provision of the data necessary for the substantiation of the declaration (inc. preparing, substantiating, communicating and maintaining the declaration)	Gianluca Capodimonte
Subject of PAS 2060 declaration	The Scope 1 and 2 emissions under the direct operational control of <b>Philip Morris CR a.s. Kutna</b> <b>Hora</b> manufacturing - (complete list available in Annex C)
Function of subject	Factory manufacturing conventional products for PMI and its brands.

#### 1.1 General information





Activities required for subjects to fulfil its function	<ul> <li>The activities required within the manufacturing process are:</li> <li>Manufacture of Tobacco Related Products;</li> <li>Cut Filler Processing;</li> <li>Improved Stem Processing;</li> <li>Filter Processing;</li> <li>Machine Cigarette Processing;</li> <li>Mentholated Inner Liner Processing;</li> <li>Other Tobacco Products Processing;</li> <li>Quality Control Laboratory Activities</li> </ul>
Rationale for selection of the subjects	PMI's ambition is to be carbon neutral for all of its direct operations (factories, fleet and offices) by 2025. In this journey, all subjects (factories) that have reached substantial emission reduction in the past years qualify to compensate residual emissions and become carbon neutral.
Type of conformity assessment undertaken	I3P-3 Independent third-party certification - unified
Reference date for PAS 2060 programme	1 <sup>st</sup> of January 2020
Achievement period	1 <sup>st</sup> of January 2021 – 31 <sup>st</sup> of December 2021
Commitment period	1 <sup>st</sup> of January 2021 – 31 <sup>st</sup> of December 2025

Table 1.1 - General information

### 1.2 Scope

The **subject** for carbon neutrality is the following affiliate:

#### Philip Morris CR a.s. Kutna Hora (Czech Republic) •

The main business activity is the manufacturing of conventional products within PMI brands, as reported in Annex C.

During the reporting period, the definition of the subject(s) remained unchanged. In the case that material change occurs to the subject(s) in the future, the process of determination and substantiation of the subject(s) and associated GHG emissions shall be re-started on the basis of newly defined subject(s).

#### 1.3 Boundaries of the subject

The system boundaries considered for the organizational carbon footprint of the subject are all the activities occurring within the physical perimeter of the affiliate and under the affiliate control including:

- The manufacturing plant
- The office(s) and/or warehouse(s) included within the perimeter \_
- The fleet under the affiliate's control \_





GHG emissions associated to affiliate manufacturing process within the defined boundary from the periods of 1st January 2021 to 31st December 2021 have been quantified in accordance with GHG Protocol Corporate Accounting Standard (operational control), and verified by SGS.

The data for this application period has been **verified by an independent third party**, SGS, who confirms that the Carbon Neutral Declaration set out in this QES is appropriately reported in accordance with the requirement of PAS 2060:2014.

The assurance letter issued by SGS can be found in Annex A.





### 2 Quantification of carbon footprint

#### 2.1 Emissions results

The total GHG emissions related to scope 1 and 2 refer to manufacturing process during the year 2021 (2nd application period) and represent a total of **2,988 tonnes of CO<sub>2</sub> equivalent**.

GHG scope	GHG emissions [tCO2eq]	Scope contribution
Scope 1 – manufacturing	2948	98,7%
Scope 1 – fleet	40	1,3%
Scope 2 – Market based	0	0
Total carbon footprint	2988	100%

Table 2.1 - GHG emissions overall results

#### 2.2 Methodology

Total GHG emissions associated with PMI affiliate(s), 1st January 2021 to 31st December 2021, have been quantified according to GHG Protocol, Corporate Accounting and Reporting Standard, following the operational control approach. This methodology was chosen as it represents best practice in terms of organization carbon footprint inventory and PAS 2060:2014 endorses it as being fully compliant with its requirements.

The types of greenhouse gases (GHG) included in the Kyoto Protocol to the United Nations Framework Convention on Climate Change are required for reporting under the GHG Protocol Corporate Standard and the below listed were covered in the calculations:

- carbon dioxide (CO2),
- methane (CH4),
- nitrous oxide (N2O).

The inventory accounts for 100% of GHG emissions of business activities and operations in which PMI affiliate(s) has direct operational control and the full authority to introduce and implement its operating policies.

All scope 1 and 2 greenhouse gas emissions relevant to the system boundary are included and quantified, in accordance with the GHG Protocol, Corporate Accounting and Reporting Standard, as confirmed by SGS verification.

#### 2.2.1.1 Scope 1

GHG emissions related to scope 1 come from direct emissions from sources owned or controlled by the affiliate(s). In PMI context, scope 1 emissions are:





- Stationary combustion:
  - o Natural gas
  - o LPG, Propane and Butane
  - Diesel (fuel oil)
  - Heavy fuel oil
  - o Petrol
  - o Biomass
- Mobile combustion
  - o Petrol
  - o Diesel
  - o Biodiesel
  - o Bioethanol
  - Natural Gas (Compressed)

#### 2.2.1.2 Scope 2

GHG emissions related to scope 2 come from indirect emissions from the generation of purchased electricity, steam, heat and cooling consumed by the affiliate(s). In PMI context, scope 2 emissions are:

- Purchased electricity
- District steam
- District heating (inc. cooling)

#### 2.2.1.3 Scope 3

GHG emissions related to scope 3 refer to all other indirect emissions as a consequence of the activities of the affiliate(s) that occur from sources not owned or controlled by the PMI affiliate are out of scope.

#### 2.3 Data sources

Primary and secondary data has been used for the Carbon Quantification process. Primary data is used where possible, only where primary data was not, secondary data was used to quantify emission. For scope 1 and 2, **primary data were exclusively used**, with the exception of the calculation of emissions from fleet where secondary data was used.

Fuel consumption and emissions have been determined by using the PMI available data for Fleet in the respective market. Taking the average fuel consumption per car, this value has been multiplied by the number of benefits car in the factory. The total fuel consumption is then multiplied using DEFRA coefficient to determine the emissions

1. Primary Data source related to all inputs and outputs corresponding to steps under the affiliates control were directly provided. This includes measured energy inputs for production.

2. Emission Factors were sourced from recognized databases (DEFRA and GHG protocol).





Data sources (e.g. invoices) were reviewed by SGS through the inventory verification , and certification against PAS 2060:2014 processes.

#### 2.4 Assumptions and estimations

All assumptions made to quantify the Greenhouse gas emission of PMI affiliates were reviewed by SGS through the GHG inventory verification process. For scope 1 and 2, no assumptions were made.

For fleet, fuel consumption and emissions have been determined by using the PMI available data for Fleet in the respective market. Taking the average fuel consumption per car, this value has been multiplied by the number of benefits car in the factory. The total fuel consumption is then multiplied using DEFRA coefficient to determine the emissions.

#### **2.5 Exclusions**

Annex C outlines all the inclusions and exclusions for GHG emissions; in order to ensure the coverage of any potential exclusions within the system boundary an additional 3% has been added to affiliate total Carbon Footprint to ensure the Carbon Neutrality program covers 100% of the GHG emissions.

#### 2.6 Uncertainties

Generally, the use of secondary data throughout the assessment represents the major source of uncertainties on results. Actions taken to minimize these uncertainties are described below and were reviewed by SGS.

- Secondary emissions factors: uncertainty associated to the use of secondary emission factors is because they represent averages, rather than specific emissions. However, their use was appropriate, and care has been taken to use the best available datasets (DEFRA and GHG Protocol).
- Secondary data has been used only for fleet emissions calculation.

Result of the uncertainty calculation is reported in Annex D.





### 2.7 Comparison with baseline period results

GHG scope	Year 2020	Year 2021
	GHG emissions [tCO2eq]	GHG emissions [tCO2eq]
Scope 1 – Manufacturing	3476	2948
Scope 1 – Fleet	42	40
Scope 2 – Market based	-	-
Total carbon footprint	3518	2988

	Market	total based [t IG]		Total Pro (Mio Cig Equiva [Mio	arettes llent)	Total CO2 Er Mio Cig Ec Market GHG/N	uivalent - based [t	
Company name	2020	2021	Absolute reduction [%]	2020	2021	2020	2021	Intensity reduction [%]
Philip Morris CR a.s.	3.518	2.988	15%	34.799	32.762	0,1010939	0,0912043	10%

## 3 Carbon Management Plan

The carbon reduction management plan considers a 6 year period (2020-2025) with the aim of maintaining the emissions down, this means that the emission indicator must not increase along the period.

This target will be monitored periodically (annually) in order to check if the expected results are aligned to the real ones. In order to achieve the target a series of project will be implemented.

Although PMI affiliates began its Carbon Management Programme for Carbon Neutrality in 2020, energy saving measures have been implementing since 2010 within the production plants (i.e. Klaipeda (Lithuania) PMPSA (Switzerland), Tabaqueria (Portugal) ). Others started later and will be considered in the boundaries of this study.

The following paragraphs explain in detail implemented (paragraph 3.2) and planned (paragraph 3.3) projects, that are mainly related to production plant GHG emissions reductions.

### 3.1 PMI best practice

In 2021, 37 out of 42 affiliates, 100% of electricity purchased came from renewable sources (electricity source for the affiliates in the carbon neutral factory certification are provided in annex F). Since 2017, we are gradually increasing the uptake of green electricity (as showed in below table) to reach 100% green electricity purchased





for all our affiliates by 2025. By investing in renewable energy electricity, PMI overall avoided the emissions of **over 1,3 million ton of CO<sub>2</sub> equivalent**.

Indicator	2017	2018	2019	2020	2021	Total Value
CO2 Scope 2 (GHG emissions) - Manufacturing - Market based [t GHG]	217.563	149.757	111.508	65.289	41.157	585.273
CO2 Scope 2 (GHG emissions) - Manufacturing - Location based [t GHG]	414.126	395.371	398.332	357.670	336.964	1.902.463
Cumulative difference between location based and market based	196.563	245.615	286.824	292.382	295.807	1.317.190

Table 3.1 - Green electricity increase

#### 3.2 Implemented GHG emissions reduction project repository

At PMI, emissions reduction project governance and budget approval comes from two distinctive main streams; one driven from central functions and another by the local team. Table 3.2 shows project implemented in the last few years, evaluated in 2021 Carbon Footprint assessment.

Project name	Description	Year	Type of energy used	Emission reduction [kg CO2 eq]
Chillers Heat Recovery (Heat Pump)	Heat recovery syste, based on Heat pump.Heat is used for HVAC heating. Saving is based on COP - high efficient heat generation.	2011	Fuel - Natural Gas	136 092
Air compressors heat recovery stage 1	Heat recovery from water cooled air compressors (water- to-air). Heat is used for preheating of fresh air inside AHU units.	2011	Fuel - Natural Gas	79 444
Heat Recovery from Dust Filters Bld.8	Heat recovery from dust collection (air- to-air). Heat used for	2014	Fuel - Natural Gas	43 176





	preheating of fresh air inside AHU units.			
FTD sleeping mode	Installation of improved control software for FTD (low consumption mode).	2014	Fuel - Natural Gas	44 558
Adiabatic humidification Secondary	Installation of adiabatic humidification in Secondary HVAC instead of steam humidification.	2016	Fuel - Natural Gas	234 879
Boiler K2 Condensing Heat Exchanger Ventos	Installation of additional heat exchanger (fume gas - to - water, condensing) on steam boiler in boilerhouse.	2017	Fuel - Natural Gas	103 623
CA compressors heat recovery	Heat pump (water-to- water) for heat recovery from water cooled air compressors to HVAC heating system.	2018	Fuel - Natural Gas	69 082
Reverse Osmosis	Installation of reverse osmosis for boiler feeding water preparation in boilerhouse.	2019	Fuel - Natural Gas	34 541

Table 3.2 - Implemented GHG emissions reduction projects





#### 3.3 Planned GHG emissions reduction initiatives

In order to achieve the above-mentioned target, PMI is committed to identifying and implementing carbon saving projects until 31/12/2025. Table 3.3 shows main initiatives identified and estimated reduction for the whole commitment period (2021-2025).

Initiative name	Description	Year planned	Type of energy used	Energy reduction (GJ)	Estimated reduction [kg CO2eq]
ESI wave 2: Heat recovery - precooler for Economizer feed water	Installlation of heat exchanger (water-to-water) to decrease water temperature before boiler economizer, improving efficiency.	2021	Fuel - Natural Gas	1 785	101 000
ESI wave 2: Chillers - chilled water system optimizer	Remote control of chiller plant with help of optimizer. Improvement of efficiency.	2021	Electricity	387	0 (green electricity)
ESI wave 2: AHU flow rate optimization	Replacement of belt driven fans in HVAC air handling units with EC fans. Improvement of fan efficiency.	2022	Electricity	to be calculated	0 (green electricity)
ESI wave 2: Individual CA meter per secondary machines	Installation of individual compressed air consumption meters per linkup. Evaluation of individual KPIs and follow up actions.	2022	Electricity	to be calculated	0 (green electricity)
HVAC Air Bypass	Modification of AHU equipment in Secondary HVAC.	2022	Electricity	1 011	0 (green electricity)
ESI wave 3 2022-2025	New potential projects focused on energy saving (electricity, natural gas).	2022- 2025	Electricity + Fuel	to be calculated	to be calculated

Table 3.3 - Planned GHG emissions reduction initiatives

Actual emissions reductions will be measured in terms of intensity metrics relating to production output.





#### 4 Carbon offset program

#### 4.1 Offset program for the second application period

PMI has an offsetting program in place to support the carbon neutrality, based on quality criteria aligned with the most rigorous international standards and targeting social and economic benefits.

Through collaborating with Carbonsink (an internationally recognized stakeholder in carbon neutral strategies), PMI has invested into an offsetting "Gs2447 Gs1265 African Biomass Energy Conservation Poa Malawi Biomass Conservation" that has be used to compensate outstanding emissions in this declaration of carbon neutrality.

Carbon neutrality is achieved by reducing and compensating Green House Gases (GHG) emissions through supporting the development of sustainable climate solutions in developing countries. Compensation projects bring social, environmental and economic benefits, which contribute to United Nations Sustainable Development Goals (SDGs) and are labelled by independent carbon standards such as **Standard (VCS)**<sup>1</sup>, **Climate Community and Biodiversity Alliance (CCBA)**<sup>2</sup>, **Gold Standard**<sup>3</sup>, **and other offsets as endorsed in PAS2060**.

Credits were retired on 27<sup>th</sup> June 2022

These credits are supported by publicly available project documentation on the <u>GSF Registry</u> (goldstandard.org) <u>https://registry.goldstandard.org/credit-blocks?q=2296&page=1&sort column=created at&sort direction=desc</u><sup>4</sup>). The registry system is the central storehouse of data on all registered projects, and tracks the generation, retirement and cancellation of all credits. To register with the program, projects must show that they have met all standards and methodological requirements.

#### 4.2 Offsetting project(s)

Offsetting projects selected by Philip Morris CR a.s. are:

"Gs2447 Gs1265 African Biomass Energy Conservation Poa Malawi Biomass Conservation"

<sup>1</sup> https://verra.org/

<sup>&</sup>lt;sup>2</sup> http://www.climate-standards.org/

<sup>&</sup>lt;sup>3</sup> https://www.goldstandard.org/

<sup>&</sup>lt;sup>4</sup> <u>https://registry.goldstandard.org/projects?q=&page=1</u>





#### 4.3 Amount of credits purchased

Credits have been ordered by PMI for the period covering 1<sup>st</sup> of January 2021 – 31<sup>st</sup> December 2021. The amount of credits purchased is **3078 tonnes** of CO<sub>2</sub> equivalent, it is composed by two contributions:

- o 2988 tonnes of CO<sub>2</sub> equivalent, amount evaluated for the first application period
- **90 tonnes of CO<sub>2</sub> equivalent**, that represent the overrate of 3% of the whole baseline carbon footprint to cover all the exclusions (Annex C) and precludes underestimation.

We can reasonably assume that PMI Factory Carbon Neutral covers 100% of the GHG emissions.

PMI portfolio offsetting credits is composed of:

#### Project: "Gs2447 Gs1265 African Biomass Energy Conservation Poa Malawi Biomass Conservation"-100%

The Gold Standard guarantee that the offsets **generated represent genuine**, **additional GHG** emission reductions. The projects are technically designed so as to enable the quantification of a specific number of emissions reductions/removals the carbon credits expected from each farm/forest. The Gold Standard label also guarantee that the project involved in delivering credits meet the criteria of additionality, permanence, leakage and double counting.

It also guarantee that the units were verified by an independent third-party that the credits were only issued after the emission reduction has taken place.

Originating Project Name: Gs2447 Gs1265 African Biomass Energy Conservation Poa Malawi Biomass Conservation"

Vintage Year: 2016 Quantity of retired GS VER credits: 3078 Serial Number: GS1-1-MW-GS2447-16-2016-6766-6590- 9667 Retirement Date: 27 June 2022 Project ID: Gs2447 Gs1265 Project type: Energy Efficiency - Domestic Country: Malawi

Retired on behalf of Philip Morris CR a.s., for offsetting unavoidable emissions, year 2021.





	the sust	bonsink tainable change	
	<b>CERTIFICATE</b> O	FRETIREMENT	
	On be	half of:	
Phil	ip Morris CR a.s	. [CZ (Kutna H	ora)]
	Certificat	te n. 1150	
Lo componsato 3 (1/X f	one l'ul ad through the ratir	amont of cortified carbon cr	edits from the project
Name e Project ID	ons. CO <sub>2</sub> eq. through the retir Type of Project and Country	ement of certified carbon cr Certification Standard	edits from the project: tCO <sub>2</sub> eq.
	Type of Project and		







https://registry.goldstandard.org/batch-retirements/details/109465

#### 4.4 Compensation program for the next application period

For the third/following application period, PMI will cancel the volume of carbon credits required once the emission calculations are completed for this period. The volumes of credits required by PMI affiliates will be confirmed at later stage upon completion of the greenhouse gas inventory audit for that Application Period. The portfolio composition and share among projects will be determined based on the volume of credits.





#### 5 Annex A – Carbon Neutral Assurance letter



#### Verification Statement Number: CCP278808/22/04/2022

The Carbon Neutrality Declaration as presented in its Qualifying Explanatory Statement (QES), for the application period 01/01/2021 – 31/12/2021 of:

Philip Morris CR a.s. Kutna Hora Czech Republic

has been verified by SGS United Kingdom Limited as conforming to the requirements of PAS 2060:2014: Specification for the demonstration of carbon neutrality (PAS 2060).

Lead Assessor: Lisa Gibson Technical Reviewer: Andrew James Collins

Authorised by:

Townch

Pamela Chadwick **Business Manager** 

SGS United Kingdom Ltd

Verification Statement Date: 7th July 2022

This Statement is not valid without the full verification scope, objectives, criteria and conclusion available on pages 2 to 3 of this Statement

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DEMONSTRATION OF CARBON NEUTRALITY www.sgs.com/climatechange

# Schedule Accompanying Greenhouse Gas Verification Statement CCP278808/22/04/2022

Brief Description of Verification Process SGS has been contracted by Philip Morris CR a.s. Kutna Hora for the verification of their Carbon Neutrality Declaration as presented in its Qualifying Explanatory Statement (QES), for the application period 01/01/2021 – 31/12/2021, against the requirements of PAS 2060/2014: Specification for the demonstration of carbon neutrality (PAS 2060).

Rales and responsibilities The management of Philip Morris CR a.s. Kutna Hora is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information, preparation of reports, OHD end-thermination of GHG emissions information, preparation of reports, QES, and purchase and retirement of carbon offsets.

It is SGS' responsibility to express an independent opinion on the Carbon Neutrality Declaration as provided by the client for the application period 01/01/2021 – 31/12/2021.

SGS conducted a third-party verification following the requirements of ISO 14064-3: 2019 of the provided carbon neutral declaration and supporting QES during the period April – July 2022. The assessment was conducted via desk review. The verification was based on the verification scope, objectives and criteria as agreed between Philip Morris CR a.s. Kutha Hora and SGS.

Objectives: The purpose of the verification exercise was, by review of objective evidence, to Independently review and confirm:
 That the carbon neutrality declaration and QES conform to the

- Inat the carbon neurally declaration and QES contom to the requirements of PAS 2060
   That the emissions data reported in the QES are accurate, complete, consistent, transparent and free of material error or omission and have been determined in accordance with .WRI/WBCSD GHG Protocol, Corporate Accounting and Reporting Standard
   That evidence is available to support information reported within the corporate Accounting and Reporting Standard
- QES including carbon offset purchases and retirements.

Level of Assurance The level of assurance agreed is reasonable.

- Scope
  This engagement covers verification of:
  Philip Morris CR a.s. Kutha Hora
  The organizational boundary was established following the operational
  control consolidation approach.
  Title or description of addivities: Emissions for manufacturing facilities,
  watehousing, offices and operation-controlled fleet.
  Scope 1 & 2 emissions only

  - Location/boundary of the activities: Single facility, Czech Republic
     Second application period: Calendar Year 2021





# 6 Annex B – Qualifying Explanatory Statements (QES) checklist







# 7 Annex C – Scope 1, 2 and 3 emissions inclusion and exclusion

Included and excluded emission sources related to the subject(s) are presented below, together with explanation for exclusions.

Scope	Emission source	Description	Inclusion exclusion	Justification of Exclusion
1.1	Stationary combustion	Combustion of fuels in boilers and furnaces for the generation of heat and steam, used for production processes and heating of buildings	Included	-
1.2	Mobile combustion sources	Transportation of employees and goods with cars under affiliate control.	Included	-
1.3	Process emissions	Emissions occurring during the production process (DIET)	Included	-
1.4	Fugitive emissions	Refrigerant gases losses	Excluded	Identified as below materiality threshold within the GHG inventory
2.1	Electricity consumption	Generation of purchased electricity	Included	-
2.2	Heat, steam and/or cold consumption	Purchase of heat, steam or cold energy not produced at operation site.	Included	-
3	Scope 3	All other indirect emissions	Excluded	Out of scope

Table 7.1 - Inclusions and exclusions





### 8 Annex D – Uncertainty calculation

#### 8.1 Uncertainty calculation

Uncertainties around the quantification of the carbon footprint have been assessed throughout the assessment following the guidelines released by ISO and available in the "GHG Protocol's Measurement and Estimation Uncertainty of GHG Emissions tool" (supporting worksheet file "Uncertainty\_Calculation\_Tool")<sup>5</sup>; since the uncertainties are not known for all the parameters (activity data and emission factors), the IPCC Guideline for National Greenhouse Inventories Reporting Instructions (1996) was used:

- Activity data: 7%
- Emission factor: 7%

All information can be accessed in the below file attached:



Outcome of the uncertainty calculation (from attached file)

				Step 1+2				Step 3				
	A	В	C	D	E	F	G	Н		J	к	L
	Activity Data (e.g. Quantity of fuel used)	Unit used to measure Activity Data	Uncertainty of activity data (a) (Confidence interval expressed in ± percent)	GHG emission factor	Unit of GHG emission factor (for kg CO2!)	Uncertainty of emission factor (Confidence interval expressed in ± percent)	CO2 emissions in kg	CO <sub>2</sub> emissions in metric tonnes	Uncertainty of calculated emissions	Certainty Ranking	Auxiliary Variable 1	Auxiliary Variable 2
							A*D	G/1000	$I = \sqrt{C^2 + F^2}$		(H*I)	K <sup>2</sup>
Example: Source 1	1000.00	GJ	+/- 5.0%	56.10	kg CO2 / GJ	+/- 10.0%	56,100.00	56.10	+/- 11.2%	Good	6.27	39.34
Source description												
Natural gas	50852616.00	MJ	+/- 7.0%	0.06	kg CO2 / MJ	+/- 7.0%	2,885,885.96	2,885.89	+/- 9.9%	Good	285.69	81,617.71
LPG / Propoane / butane	960993.44	MJ	+/- 7.0%	0.06	kg CO2 / MJ	+/- 7.0%	61,503.58	61.50	+/- 9.9%	Good	6.09	37.07
Diesel or Fuel oil	0.00	MJ	+/- 7.0%	0.07	kg CO2 / MJ	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Biomass	0.00	MJ	+/- 7.0%	0.10	kg CO2 / MJ	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Diesel	0.00	L	+/- 7.0%	2.69	kg CO2 / L	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Biodiesel	0.00	L	+/- 7.0%	0.17	kg CO2 / L	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Bioethanol	0.00	L	+/- 7.0%	0.01	kg CO2 / L	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Natural gas	0.00	L	+/- 7.0%	1.15	kg CO2 / L	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Petrol	0.00	L	+/- 7.0%	2.31	kg CO2 / L	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Electricity - Market based	22968118.00	kWh	+/- 7.0%	0.00	kg CO2 / kWh	+/- 7.0%	0.00	0.00	+/- 9.9%	Good	0.00	0.00
Fleet Fuel Diesel	14926.00	L	+/- 7.0%	2.68	kg CO2 / L	+/- 7.0%	40,001.68	40.00	+/- 9.9%	Good	3.96	15.68
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
							0.00	0.00	+/- 0.0%	High	0.00	0.00
	h 61 - 1				Sum CO. e	missions (M):	2.987.391.22	2.987.39	T			
Note: For individual uncertainties greater than 60%, the n	esuns of the tool are n	or value			0011 0020		2,001,001.22	2,007.00	1			
										Aggregated Certainty Ranking		
					Step 4: Cumula	ted Uncertainty:	$\pm u = \pm \frac{\sqrt{\sum_{i=1}^{n} (I)}}{\sqrt{\sum_{i=1}^{n} (I)}}$	$\left(I_{i} * I_{i}\right)^{2}$	+/- 9.6%	Good		

Table 8.1 - Uncertainty calculations

<sup>5</sup> <u>https://ghgprotocol.org/calculation-tools</u>





1	2	3	4	5	
Gas	Source category	Emission factor	Activity data	Overall uncertainty	
$CO_2$	Energy	7%	7%	10%	
CO <sub>2</sub>	Industrial Processes	7%	7%	10%	
	Land Use Change				
CO <sub>2</sub>	and Forrestry	33%	50%	60%	
CH <sub>4</sub>	Biomass Burning	50%	50%	100%	
CH₄	Oil and Nat. Gas Activities	55%	20%	60%	
CH <sub>4</sub>	Rice cultivation	3/4	1/4	1	
CH₄	Waste	2/3	$\frac{1}{3}$	1	
CH₄	Animals	25%	10% 20%		
CH <sub>4</sub>	Animal waste	20%	10% 20%		
N <sub>2</sub> 0	Industrial Processes	35%	35%	50%	
N <sub>2</sub> 0	Agricultural Soils			2 orders of magnitud	
N <sub>2</sub> 0	Biomass Burning			100%	

Source: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions

Table 8.2 - IPCC uncertainty data





### 9 Annex E – Voluntary offset program

The project is developed in the north, center and south of Malawi and it promotes the introduction of improved cookstoves to enhance the living conditions of local people and mitigate the environmental impact. The distribution of efficient cookstoves will improve these people's living conditions, reducing the pollution deriving from the burning of woodfires and thus reducing the related diseases and injuries.

In this annex, specific project sheet concerning the chosen offsetting projects are presented.



210917 Rfp Carbon Credits Portfolio Pmi.;

All the relevant project documentations can be found at the following link:

GSF Registry (goldstandard.org)

SustainCERT Platform (sustain-cert.com)

https://registry.goldstandard.org/batch-retirements/details/109465



PDF



# 10 Annex F – Renewable Energy Certificates

#### 10.1 Kutna Hora



220524 PMI Czech 220620 Cancellation Republic - Philip Morr Statement 5029 - Phil

Inne gold

Manuel Á. V. G. Marques Director Manufacturing CZ Kutna Hora, 11. 7. 2022

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