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2023

GREENHOUSE GAS EMISSIONS REPORT

GREENHOUSE GAS (GHG) EMISSIONS OF MZT INZENERING OPERATIONS FOR THE YEAR ENDED DECEMBER 31, 2023

SKOPJE, 2024

Contents

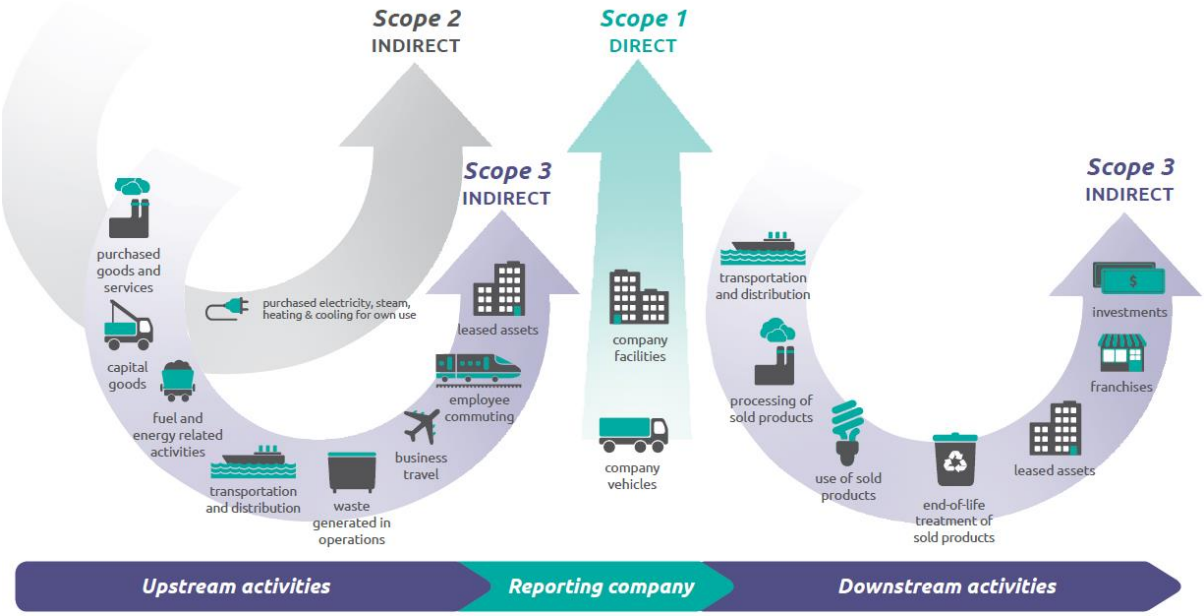
Disclaimer:

About this report

This report outlines the Greenhouse Gas (GHG) emissions data of MZT Inzenering across their operational activities, for the year ended December 31, 2023.

Methodology[1]

The following describes the methodology used for each emission Scope in the current reporting year and any methodology changes made from the prior year. Emissions factor sources are summarized in the Appendix.



GHG Protocol

The report follows the methodologies outlined in the GHG Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), established by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). This protocol provides internationally accepted standards for measuring and reporting GHG emissions. MZT Inzenering adheres to these standards to ensure accurate and transparent reporting of emissions across Scope 1, Scope 2, and relevant Scope 3 categories.

Approach to measuring GHG Emissions

This section details approach to measuring Greenhouse Gas (GHG) emissions from MZT Inzenering's operations for the year 2023, which serves as the company's base year for emissions reporting. As a proven supplier of equipment in key industries such as automotive, energy, transport, and construction, MZT Inzenering adheres to the internationally recognized GHG Protocol to ensure precise and transparent reporting of its emissions.

[1] https://www.wri.org/initiatives/greenhouse-gas-protocol

Base Year

As this is MZT Inzenering's first GHG emissions report, 2023 serves as the base year for future comparisons. This base year provides a benchmark for tracking the company's progress in reducing GHG emissions in subsequent years.

Scopes

The report covers GHG emissions across **Scope 1, Scope 2**, and relevant **Scope 3** categories:

- **Scope 1** – Direct emissions from the combustion of fuels in stationary and mobile sources under MZT Inzenering's owned vehicles.
- **Scope 2** – Indirect emissions from consumption of purchased electricity, cooling and heating used in company facilities and manufacturing processes.
- **Scope 3** – Indirect emissions from selected upstream and downstream transportation and distribution, business travel, waste generated from operations, employee commuting, and purchased goods and services.

Emission calculations

Scope 1

In Scope 1 are included the direct emissions from the stationary combustion of fuels and mobile combustion of fuels from the usage of company vehicles of MZT in 2023.

Within the calculation the following data were considered:

- Total annual consumption of fuels by type
- NCV of fuels by type
- Emission factor for each fuel type

Fuel type	Total annual consumption [liters]	NCV [TJ/KG]	Emission factor[2] [kg/TJ]	Emissions [$kgCO_{2\text{-}eq}$]
LPG	5.568	48,791	63100	
Motor gasoline	1.404	44,312	69300	
Diesel	16.222	42,942	74100	
TOTAL				**55.057,6**

Emission calculation:

Total GHG emissions from all fuel consumption: **55.057,6 $kgCO_{2\text{-}eq}$ = 55,0576 $tCO_{2\text{-}eq}$**

Scope 2

Scope 2 emissions refer to the indirect to the GHG emissions associated with the consumption of purchased electricity, heating and cooling withing the MZT company.

[2] *The emissions factors used for all calculations are sourced from the* ***"National CO2 and Non-CO2 Gases Emission Factors for Key Air Emission Sectors According to IPCC and CORINAIR Methodologies"****.*

Calculation of grid emission factor:

Gg	Net CO_2*	CH_4	N_2O	$CO_{2\text{-eq}}$
Production of electricity	3.836,75	0,04920326	0,052434155	3.853,6
Combined production of heat and electricity	547,01	0,00998158	0,000998158	547,56
TOTAL	4.383,76	0,06	0,05	4.401,16

$$Emission\ factor\ \left(\frac{kg\ CO_2e}{kWh}\right) = \frac{1A1a\ emissions\ (kg\ CO_2e)}{Electricity\ generated\ from\ all\ sources\ (kWh) + Electricity\ imports\ (kWh)}$$

Grid emission factor = 0,669 ktCO2eq/GWh

Based on the data provided, the company uses only electricity to meet the needs of the production plant as well as for cooling and heating of the facility. The emissions have been calculated based on the total electricity consumption throughout 2023.

- Total electricity consumption: 23.272 kWh
- Emission factor for electricity: 0.669 $ktCO_{2\text{-eq}}$/GWh

Emission calculation:

Total GHG emissions from all electricity consumption: 15.568,9 $kgCO_{2\text{-eq}}$

Scope 3

Due to the insufficient data provided by the company in terms of complete upstream and downstream activities, the calculation of the GHG will be limited to:

3.1 Purchased Goods and Services

During the analyzed 2023, the company purchased in total the following goods (per type and quantity):

- Steel plate 84.500kg
- Coated (plastics) steel plate 77.100kg
- Total 159.500kg

All purchased goods are produced in the metallurgy complex in Skopje.

Emission factor for iron and steel (Rolled or obtained by continuous casting): total emissions 2,21 tCO2eq/t[3]
Calculated emissions – 159,5t x 2,21 tCO2eq/t = 352,5tCO2eq

3.2 Upstream Transportation and Distribution and 3.3 Downstream Transportation and Distribution

Both upstream and downstream goods transportation and distribution will be analyzed together, since the purchased goods are always transported directly to

[3] DEFAULT VALUES FOR THE TRANSITIONAL PERIOD OF THE CBAM BETWEEN 1 OCTOBER 2023 AND 31 DECEMBER 2025, Brussels, 22 December 2023, European Commission

the construction sites. The company reported in total 5400km annually, explaining that their suppliers are from Kumanovo (Metalnet), Skopje (Trimetal, Ferkom) and Prilep (Zoki 2006 DOOEL).

Emissions calculation:

Type of vehicle: Diesel trucks

Average distance: 200km

Type of activity: Freight transport

Total weight of freight: 159.500kg

GHG Emissions				
Fossil Fuel CO2 (metric tonnes)	**CH4** (kilograms)	**N2O** (kilograms)	**Total GHG Emissions, exclude Biofuel CO2** (metric tonnes CO2e)	**Biofuel CO2 Emissions** (metric tonnes)
6,489	0,076	0,059	6,507	0

3.4 Employees commuting

Considering employees commuting, the company reports that on average 10 employees use their private vehicles to commute to working premises. The average daily distance is 10km, while the type of the used fuel is the following: 5 cars run on petrol and 5 cars use LPG (liquid petroleum gas)

Emissions calculation:

252 working days x 10km/day x 5 petrol cars = 12.600km/annually

252 working days x 10km/day x 5 LNG cars = 12.600km/annually

12.600km/100km x 8l petrol = 1008l (752kg)

12.600km/100km x 7l LPG = 882l (449kg)

NCV for petrol (motor gasoline): 44,312 TJ/kg

NCV for LPG: 48,791 TJ/kg

Emission factor for motor gasoline: 69300kgCO2/TJ

Emission factor for LPG: 63100kgCO2/TJ

Calculated emissions from gasoline cars: 2,329tCO2eq

Calculated emissions from LNG cars: 1,329 tCO2eq

3.5 Waste generated in operations

- ✓ Total amount of reported solid waste is 2,5t metal (construction steel), which is sold to local waste management companies.

Emissions from metal waste: 21,28kgCO2eq/t[4] x 2,5t = 555,7 kgCO2eq

- ✓ Total amount of communal waste has not been reported from the company, but it is assumed the quantity of 10,1t as reported in the Environmental report from 2021.[5]

Emissions from communal waste:

Potential methane gen. rate per unit of waste: 0,09 Gg CH4/Gg MSW

Net annual methane emissions: 544,9kgCH4 (13.622,5kgCO2eq)

3.5 Business travel

As per these activities, the company reported that during the 2023, weren't realized any business travel activities (considering using of airplanes, rail or other means of transportation) apart from the company vehicles fleet (calculated under Scope 1).

3.6 Emissions due to losses in distribution and transmission grid

Total energy used from the grid in 2023: 23.272kWh

Calculated grid emission factor: 0,669tCO2eq/MWh

Losses in the distribution grid: 13,8%

Losses in the transmission grid: 1,05%

Total losses in the grid: 13,8% + 1,05% = 14,85%[6]

Emissions from electricity transmission and distribution:

0,1485 x 0,669kgCO2eq/kWh x 23.272kWh = 2312 kgCO2eq

3.7 Calculation of total GHG emissions from Scope 3

- Emissions from purchased Goods and Services 352,5 tCO2eq
- Emissions from Upstream Transportation and Distribution and Downstream Transportation and Distribution 6,507 tCO2eq
- Emissions from employee commuting 2,329 tCO2eq
- Emissions from waste 1,329 tCO2eq
- Emissions from business travel 13,6225 tCO2eq
- Emissions due to losses in distribution and transmission grid 2,312 tCO2eq

Total GHG emissions from Scope 3: 378,5995 tCO2eq = 378599,5 kgCO2eq

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[4] https://www.climatiq.io/data/emission-factor/3f0e5202-110f-4b71-a26c-4d5c87564870

[5] MZT Inzinering's Environmental Report for 2021

[6] https://www.erc.org.mk/odluki/22024.04.25%20-%20RKE%20GI%202023-FINAL.pdf – Annual Report 2023 (Energy Regulatory Commision)

Total Greenhouse gas emissions (Scope 1, 2 and 3)

Scope	Category	2023
Scope 1 [tCO_{2eq}]	Category 1: Direct emissions	55,0576
Scope 2 [tCO_{2eq}]	Category 2: Indirect emissions from imported energy (market-based method)	15,5689
Scope 3 [tCO_{2eq}]	Category 3: Emissions from purchased Goods and Services	352,5
	Category 4: Emissions from Upstream Transportation and Distribution and Downstream Transportation and Distribution	6,507
	Category 5: Emissions from employee commuting	2,329
	Category 6: Emissions from waste	1,329
	Category 7: Emissions from business travel	13,6225
	Category 8: Emissions due to losses in distribution and transmission grid	2,312
Total direct emissions [tCO_{2eq}]		**55,0576**
Total indirect emissions [tCO_{2eq}]		**394,1684**
Total net emissions [tCO_{2eq}]		**449,226**