# VERGO ENERJİ SİSTEMLERİ SAN. VE TİC. A.Ş.

## GREENHOUSE GAS INVENTORY REPORT 2023

Date: 29.02.2024 v.01

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# DEFINITIONS AND ABBREVIATIONS

## Definitions

**Greenhouse gas**: Gaseous component of the atmosphere, both natural and anthropogenic, that is absorbed and emitted by the earth, atmosphere and clouds at specific wavelengths in the infrared spectrum range.

**Greenhouse gas source**: A physical unit or process that releases greenhouse gases into the atmosphere.

**Greenhouse gas sink**: Physical unit or process that removes any of the greenhouse gases from the atmosphere.

**Greenhouse gas emission**: The total mass of one of the greenhouse gases released into the atmosphere in a certain period.

**Carbon Footprint**: It is a term used to describe the amount of carbon that a process causes to be emitted into the atmosphere because of production, transportation, heating, energy consumption, or any raw material it purchases and any product it produces.

**Greenhouse gas removal:** The total mass of one of the greenhouse gases removed from the atmosphere over a given period.

**Greenhouse gas emission or removal factor:** Factor relating to activity data for emissions or removals of greenhouse gases.

*Note: The emission or removal factor of one of the greenhouse gases may also include an oxidation parameter.*

**Greenhouse gas activity data**: A quantitative measure of the activity that results in the emission or removal of a greenhouse gas.

*Note – Examples of greenhouse gas emission activity data include the amount of energy, fuel or electricity consumed, materials produced, services provided or land area affected.*

**Greenhouse gas inventory**: Information on an organization's greenhouse gas sources, greenhouse gas sinks, greenhouse gas emissions and greenhouse gas removals.

**GHG program**: Voluntary or mandatory international, national, or regional system or plan that records, processes, or manages GHG emissions, removals, emission reductions, or removal improvements outside the organization or GHG project.

**Global warming potential (GWP)**: The factor that defines the mass-based radiative force effect of a given greenhouse gas in terms of equivalent carbon dioxide in each period.

*Note – Impact potentials on global warming determined by the Intergovernmental Panel on Climate Change are included in the report*.

**Carbon dioxide equivalent (CO2 Equivalent):** The unit used to compare the radiative power of a greenhouse gas to carbon dioxide.

*Note – Carbon dioxide equivalent is obtained by multiplying the mass of the emitted greenhouse gas and its potential to impact global warming*.

**Base year**: A historical period designated for future comparison of greenhouse gas emissions or removals or other greenhouse gas-related information.

*NOTE Base year emissions or removals can be calculated based on a specific period (one year) or the average of several periods*.

**Facility:** A single facility, set of facilities, or production processes (fixed or mobile) that can be defined within a single geographic boundary, organizational unit, or production process.

**Establishment**: A public or private company, firm, entrepreneur, institution, or the whole or a part of them, with or without partnerships, having its own business and management.

**Responsible party**: The person or persons responsible for making the greenhouse gas declaration and providing greenhouse gas information.

*Note – The responsible party may be either an individual, a representative of an organization or project, or a validator or a party collaborating with the verifier. The certifier or verifier may collaborate with other parties, such as the customer or greenhouse gas program manager.*

**Target user**: The person or organization identified by those who report greenhouse gas-related information and who relies on this information to make decisions.

*Note – The intended user may be a customer, responsible party, greenhouse gas program managers, regulators, the financial community, or other stakeholders (local governments, government entities, or non-governmental organizations).*

**Confidence level**: The degree of trust required by the target user in validation or verification.

*Note 1 to entry: The confidence level is used to determine the details of the validation or verification plan designed by the certifier or verifier to determine whether there are material errors, omissions or misunderstandings.*

*Note 2 – There are two levels of confidence (reasonable or limited) that result in different statements of confirmation or verification.*

**Materiality**: The concept that, due to any or all errors, omissions and misunderstandings, can affect the greenhouse gas declaration and the decisions of target users.

**Monitoring**: Continuous or periodic assessment of greenhouse gas emissions and removals or other greenhouse gas data.

**Uncertainty:** Parameter related to the result of the calculation that can be associated with the determined quantity and shows the distribution of values.

*Note – Uncertainty information; In general, it refers to quantitative estimates of the likely distribution of values and qualitative assessments of the potential causes of this distribution.*

## Abbreviations

| | |
|---|---|
| **$CO_2$ eq.** | Carbon dioxide equivalent |
| **EF** | Emission Factor |
| **WRI** | World Resources Institute |
| **GHG** | Greenhouse Gas |
| **GWP** | Global Warming Potential |
| **HFC** | Hydro Fluoro Carbons |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **$CH_4$** | Methane |
| **$CO_2$** | Carbon dioxide |
| **$N_2O$** | Nitrous oxide |
| **PFC** | Per Fluoro Carbons |
| **$SF_6$** | Sulfur hexafluoride |
| **NF3** | Nitrogen trifluoride |
| **ISO** | International Organization for Standardization |
| **AR6** | Sixth Assessment Report |
| **WTT** | Well to Tank |
| **TÜRKAK** | Turkish Accreditation Agency |
| **GDP** | Gross Domestic Product |

# INTRODUCTION

All data collected and analyzed in this report were created in line with the principles of suitability, integrity, consistency, transparency and accuracy of the World Resources Institute (WRI) Greenhouse Gas Protocol (GHG), the most widely used international carbon calculation methodology.

Rapid population growth in the world, industrialization, urbanization and the resulting increase in production and consumption cause environmental problems to grow. Climate change and global warming are among the most discussed problems in recent years. These problems, caused by the rapid increase in the rate of gases that cause the greenhouse effect in the atmosphere, pose a global threat such as the destruction of natural resources, desertification and decrease in biodiversity.

Today, when energy consumption has increased significantly compared to previous years, 80% of the energy is provided by fossil-based production facilities (International Energy Agency, 2022). The use of fossil resources causes climate change day by day.

It has been determined that the main cause of global climate change is human activities in greenhouse gas emissions that maintain the earth's heat.

According to the Panel on Climate Change (IPCC); Although human-induced greenhouse gas emissions are primarily caused by fossil fuels and industry, they are increasing in all sectors. Approximately 34% of anthropogenic emissions come from the energy supply sector, 24% from industry, 22% from agriculture, forestry and land use, 15% from transportation and 6% from buildings. It has been stated that the decrease in forest areas also has a share of 17%. With climate change, temperature and drought are expected to increase further. In addition, it is predicted that glaciers will melt, ocean and sea water levels will rise, and as a result, plants and animals will be at serious risk. When these events occur, the ecosystem balance will be disrupted and create dangerous situations for living things on Earth.

Carbon footprint means the damage that individuals and companies leave to the world directly or through the use of energy in the production of the products they use, in terms of the amount of greenhouse gas produced, measured in terms of carbon dioxide, which is shown to be the main responsible for global warming. It is a concept developed in the mid-2000s to measure the damage caused by human activities on nature in terms of carbon emissions.

The concept of carbon footprint is one of the indicators of environmental sustainability that allows us to reveal the effects of human production-consumption activities on nature with quantitative data. With carbon footprint analysis, the main problem of sustainable development is "The nature we have and how much of it do we use?" By asking the question, the effects of human activities on nature are measured.

The main greenhouse gases that cause climate change are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbon (HFC), perfluorocarbon (PFC) and sulfur hexafluoride ($SF_6$). The most important of these components is $CO_2$ gas, and its share in total greenhouse gases is around 80%. The USA and China contribute to approximately half of the global $CO_2$ emission, and the industrial sector ranks first in the distribution of $CO_2$ emissions, and the transportation sector ranks second.

It is predicted that greenhouse gas emissions will lead to global warming of 1.5 °C in the near term, with the scenarios and modeled paths taken into account by the IPCC.

The increase in global warming will lead to an increase in the risks, anticipated negative effects, related losses and damages arising from climate change. However, it will be possible to limit the inevitable and irreversible negative effects that may occur in the future by regularly reducing greenhouse gas emissions. By limiting human-induced global warming, our country will contribute to reaching its net zero CO2 emission target. In global modeling scenarios that limit warming to 1.5 °C, greenhouse gas emissions are expected to be rapidly reduced significantly across all sectors, and the global net zero emission target is aimed to be achieved by the early 2050s.

Our country's national inventory is published every year within the scope of UNFCCC, and the latest inventory report was published in April 2023. The inventory report has been monitored since the base year of 1990, and the report created in 2023 covers 2021 data. The net emission value in 2021 is 517.2 Mt CO2 eq. and the increase rate compared to 1990 is 238%.

Below are the emission values by years,

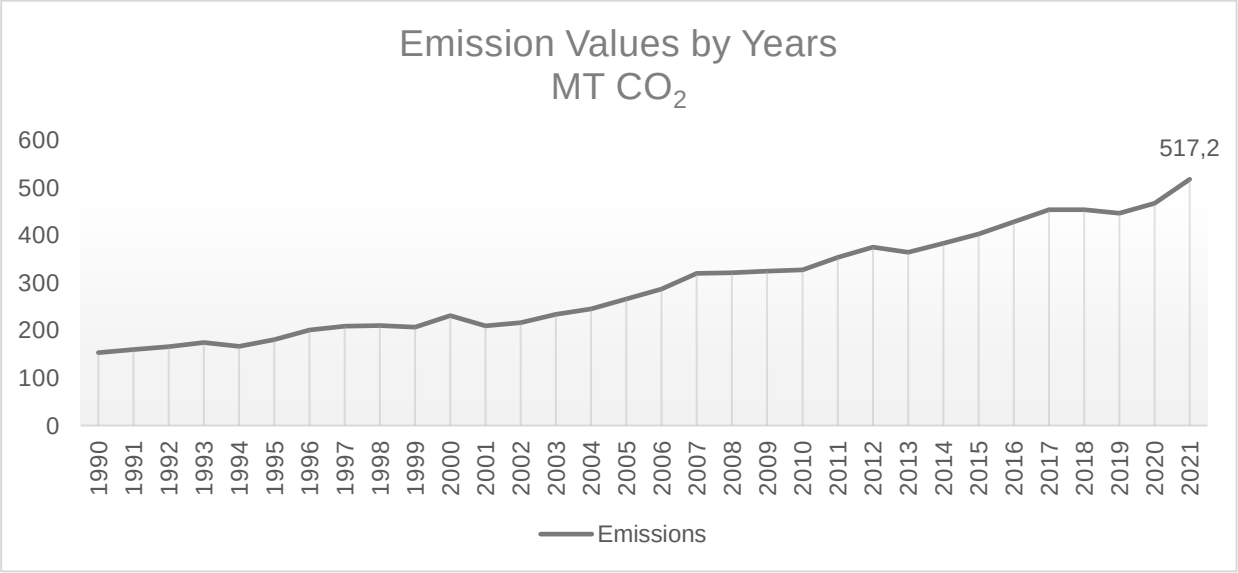


**FIGURE 1 *EMISSION VALUES BY YEARS (MT $CO_2$)***

It is thought that it would be more effective to interpret the increase rate of emissions in the above-mentioned graph by analyzing it with GDP values. According to the values published by TURKSTAT, GDP values between 1998 and 2015 are given below in terms of 10^6 $:

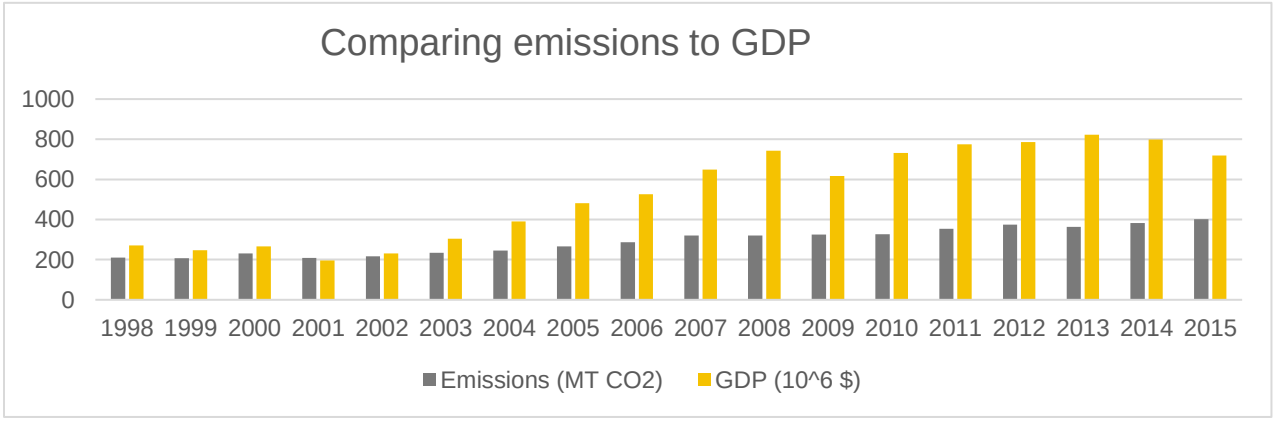


**FIGURE 2 COMPARISON OF EMISSIONS WITH GDP**

On the other hand, the sectoral distribution of emissions is reported as follows:

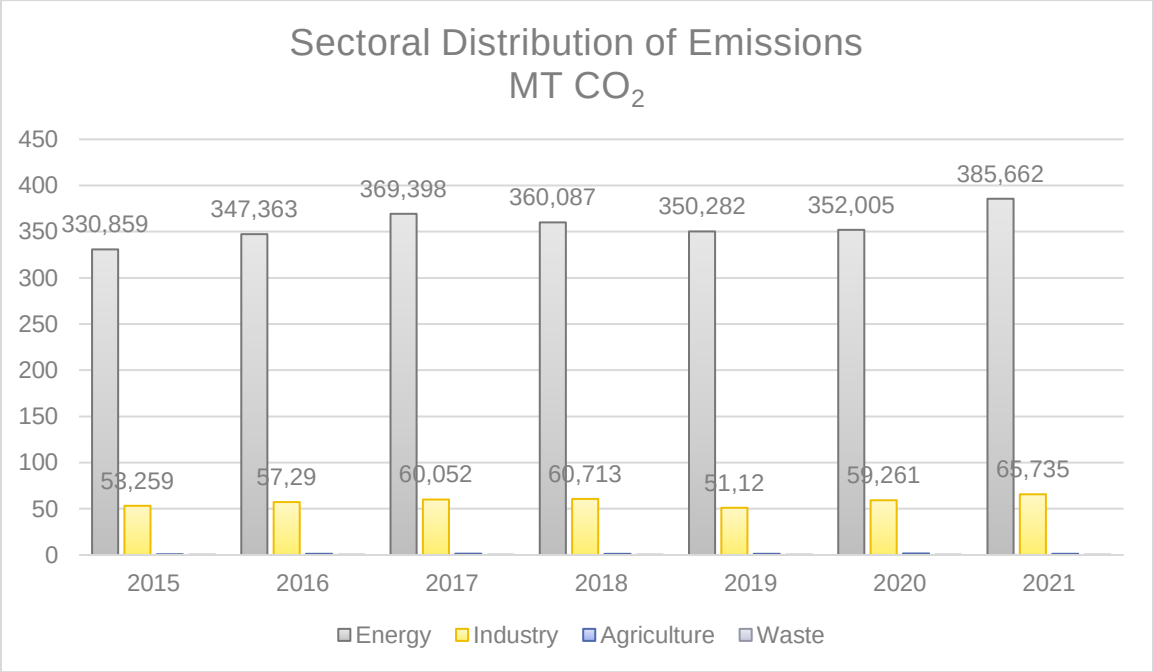


**FIGURE 3 *SECTORAL DISTRIBUTION OF EMISSIONS***

Apart from energy needs, the highest emissions in our country occur in production activities. The emission intensity distributions of these sectors are shown below.

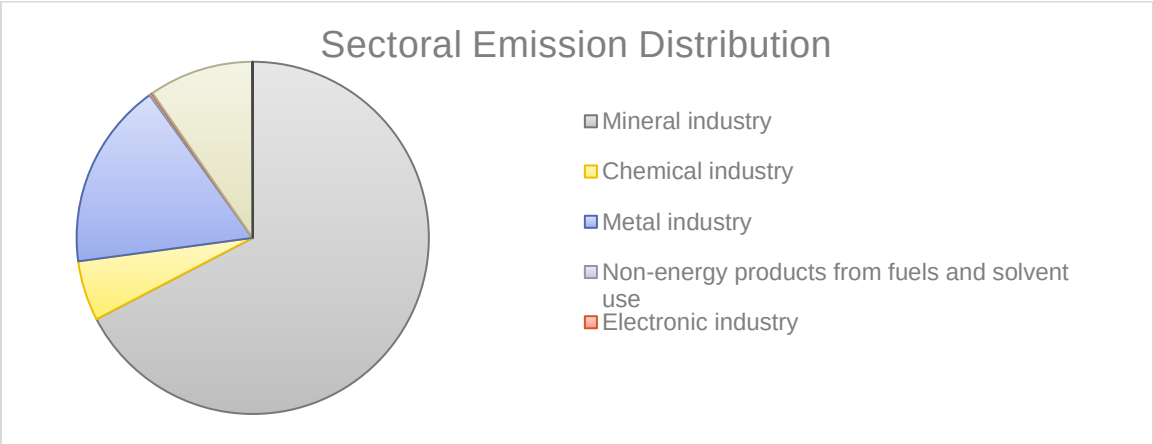


**FIGURE 4 *SECTORAL EMISSION DISTRIBUTION***

As stated in the graph, the most intense industry in industrial emissions is the mineral industry, followed by metal industry emissions. In the management of these emissions, there are risks to our business within the scope of both product design and value chain. The greenhouse gas inventory report is used by our organization as an annual performance analysis tool for our organization. In the inventory report prepared in light of these risks, a study was carried out on the risks awaiting our organization for possible neutralization efforts in order to create the carbon budget for our activities. The report has been created

as a base year and it is expected that our business will be managed according to its climate-related policies.

## GREENHOUSE GAS AND SUSTAINABILITY ACTIVITIES IN THE WORLD

### Paris Agreement

It is an international agreement aimed at combating climate change. Adopted in Paris on 12 December 2015. This agreement aims to limit greenhouse gas emissions worldwide and keep global warming below 2 °C. Countries determine their own national goals and strive to achieve these goals. The Paris Climate Agreement is considered a historic step in the fight against climate change.

### Kyoto Protocol (KP)

The Kyoto Protocol, adopted in 1997, entered into force in 2005. Participating countries have agreed to reduce greenhouse gas emissions according to specific targets. The agreement includes flexibility mechanisms and monitoring processes. The Kyoto Protocol represents an example of international cooperation in combating climate change, but it expired in 2012 and was replaced by other agreements such as the Paris Climate Agreement.

### EU Green Deal Process

It is a comprehensive climate and sustainability initiative that includes the European Union's goal of creating a carbon-free economy by 2050. Policy and action plans cover areas such as renewable energy promotion, sustainable development, employment and education. With this initiative, the EU aims to take a leading role in the fight against climate change.

## Carbon Border Adjustment Mechanism

The aim of CBAM, a policy mechanism proposed by the European Union, is to contribute to reducing the carbon emissions of products produced within the EU and to ensure that products imported from foreign countries comply with similar carbon reduction standards. CBAM requires that imported products include carbon costs and calculate environmental impacts. This aims to promote both environmental sustainability and fair competition.

The main objectives of CBAM are: Combating Climate Change and contributing to reducing the carbon emissions of products produced within the EU, in line with the EU's climate targets. Fair Competition in Foreign Trade: Ensuring that products imported from foreign countries compete fairly with related products within the EU and that imported products include carbon costs. Carbon Pricing: To encourage calculating carbon emissions in the production processes of imported products and applying a carbon price on these emissions. CBAM imposes greater reporting and compliance obligations for importers and manufacturers and requires monitoring of the environmental impacts of imported products. This mechanism aims to contribute both to the targets of reducing greenhouse gas emissions within the EU and to take into account the environmental impact of products imported from abroad.

# REPORT INFORMATION

| REPORTING INFORMATION: | |
|---|---|
| **Establishment Title** | Vergo Energy Systems Industry and Trade Inc. |
| **Address(es)** | Salihli OSB Mah. 307 Sok. No:13 Salihli / MANİSA<br>Şehitkemal Mah. Aliağa Cad. No:95 Aliağa/İZMİR |
| **Communication** | +90 232 880 70 80 |
| **web** | http://www.vergo.com.tr/ |
| **E-mail** | info@vergo.com.tr |
| **Reporting Date** | 29.02.2024 |
| **Report Rev. history** | 00 First Release |
| **Base Year** | 2022 |
| **Reporting Period** | 01.01.2023 – 31.12.2023 |
| **Reporting Frequency** | It is published once a year. |
| **Report Responsible** | Bihter OLGUN |
| **Responsible Person Title** | Senior Quality Engineer |
| **Responsible Person E-mail** | bihter.olgun@vergo.com.tr |
| **Approved by the Report** | Olcay Bakan |
| **Approving Title** | Quality manager |
| **Approving E-mail** | Olcay.bakan@vergo.com.tr |
| **Preparing Organization** | Sagenit Management Services Organization Industry and Trade Limited Company |
| **Communication** | info@sagenit.com |
| **Reporting Standard** | ISO 14064-1:2018 & GHG Protocol |
| **Direct Emissions** | 260,68 $tCO_2$ eq. |
| **Indirect Emissions** | 309.259,41 $tCO_2$ eq. |
| **Total emissions** | 309.520,09 $tCO_2$ eq. |
| **Direct Emissions (Salihli)** | 191,11 $tCO_2$ eşd. |
| **Indirect Emissions (Salihli)** | 213.292,75 $tCO_2$ eşd. |
| **Total emissions (Salihli)** | 213.483,86 $tCO_2$ eşd. |
| **Direct Emissions (Aliağa)** | 69,57 $tCO_2$ eşd. |
| **Indirect Emissions (Aliağa)** | 95.966,66 $tCO_2$ eşd. |
| **Total emissions (Aliağa)** | 96.036,23 $tCO_2$ eşd. |

## REPORTING BOUNDARIES

**TABLE 1 Emission Inventory**

| Direct Activities | Energy Indirect Activities | Logistics Indirect Activities | Upstream Activities | Downstream Activities |
|---|---|---|---|---|
| Stationary Combustion | Purchased Electricity | Transportation of Input Material | Raw material purchasing | Processing of Products |
| Mobile Combustion | Other Purchased Energy | Transportation of Sold Material | Water supply | Use of Products |
| Anthropogenic Emissions | | Personnel Services | Purchase of consumables | Waste Process of Products |
| | | Flight Records | Waste and wastewater management | Operational Lease |
| | | Accommodation Information | Procurement of services | Concession activity |
| | | Fuel production and fuel transportation (WTT) | | Investments |

## OUR APPROACH TO GREENHOUSE GAS

Our business actively implements monitoring systems regarding climate risks. The ISO 14064-1 Standard is used as a tool to analyze emissions in a standard way using monitoring technologies for our sustainability.

In reporting, the approach to control the course of our activities is maintained. Our report, which is published in the trade registry gazette of our organization, has been applied within the business boundaries, but the necessity of indirect activities has been analyzed to include all our activities. Our activities within the scope of address and reporting are included in the upper tables.

The Greenhouse Gas Report covers direct and indirect emissions, and CO2, CH4, N2O, NF3, HFC, PFC and SF6 gases are recorded in the programming. Within the scope of the direct category, each greenhouse gas group is further subdivided by the standard requirement, and in indirect emissions, CO2 equivalent. It is expressed with the term.

Our greenhouse emissions inventory report is part of a climate metrics monitoring systematic for our scope, so it contains reporting components, not directly the boundaries of our climate management

activity. Apart from this report, our organization analyzes the values in the greenhouse storage inventory report within the framework of the ISO 14001 Standard at Management Review meetings and evaluates them within the scope of the agenda.

We consider it as the base year for our emission values resulting from reporting and use it to determine our targets after at least two reporting periods. When determining targets, we consider relevant parties and risk/opportunity opportunities and display them by standard principles.

## PRINCIPLES

*General*

Carbon footprint calculation and reporting studies carried out in the organization were carried out by the principles of the ISO 14064-1:2018 standard.

*Relevance*

Carbon footprint calculation and reporting studies carried out in the organization were carried out concerning the ISO 14064-1:2018 standard in line with the needs of target users.

*Completeness*

The working committee on greenhouse gas emissions and removals was established to examine all units on this subject, taking into account all greenhouse gas emissions and removals.

*Consistency*

Total CO2 eq. obtained as a result of calculations. For the comparison of the amount with the base year to give an accurate and consistent result, the evaluations are made in absolute CO2 eq. Instead, it is compared based on carbon density with appropriate parameters. The parameters compared are included in the calculation tables.

*Accuracy*

Total CO2 eq. obtained as a result of calculations. A Greenhouse Gas Quality Management System was established to ensure that the amount is accurate and reliable, data was collected from sources to minimize uncertainties, and calculation levels were selected by target user requests.

*Transparency*

It has been prepared in a clear and understandable format, including the references used together with the details of Carbon Footprint Calculation Studies and Greenhouse Gas Inventory Reporting, to create a reliable basis in the decision-making processes of target users.

## DATA MANAGEMENT AND OUR STRATEGY

The data in our report is used as a measurement tool in our organization's creation of an action plan for climate metrics. In this context, it is aimed to reduce the emission value by creating the following strategies within the scope of greenhouse gas:

- To ensure that our organization's emission values are reduced depending on our emission reduction capabilities,
- To analyze the impact of our activities by GWP100 and to identify stages with high emission impacts by analyzing our production according to system boundaries,
- To ensure that the accuracy and quality of the data used as a reference for emission calculations is increased by strengthening communication with the value chain,
- To ensure the management of our energy choices and the emissions that occur after our choices, taking into account the greenhouse gas connection of the effects in the energy management system,
- One of our general strategies is to complete our establishment preparations by following national and international approaches to greenhouse gas emissions.

To implement the specified strategies and carry out each reporting period in a standard manner, a documentary structure has been created within the framework of our organization. While determining the content created, the applications of the principles specified in the standard were taken into account, and the following headings were evaluated in the procedure:

- Determining and reviewing the responsibilities and authorities of those responsible for the development of the inventory
- Identifying, implementing, and reviewing appropriate training for members of the inventory development team.
- Determination and review of organizational boundaries
- Identification and review of sources and sinks
- Selection and review of calculation approaches, including data used for calculation and greenhouse gas calculation models, that are consistent with the intended use of the inventory
- The activity of applying and reviewing benchmark calculations to ensure consistency.
- Use, maintenance and calibration of measuring equipment
- Developing and maintaining the data collection system
- Regular accuracy checks and periodic internal audits, technical reviews;
- Periodic review of opportunities to improve knowledge management processes.

## BASE YEAR ANALYSIS

Our organization has analyzed the base year in the current reporting. In future reports, our emissions will be analyzed according to the base year and interpretations will be added in this section.

In some cases, the base year value may need to be recalculated by the standard. These issues have been analyzed within the framework of our procedure.

If the base year changes, our organization will indicate the changes in the data for the redetermined year in subsequent reports.

## MITIGATION ACTIVITIES

Within the scope of greenhouse gas management, our energy reduction activities are planned with the installation of the ISO 50001 system within our organization.

## INVENTORY MANAGEMENT

Greenhouse gas inventory is of primary importance within the scope of data collection in emission calculations. Even in base-year accounts, inventory changes are analyzed every year and their effect on consistency is evaluated. Emissions within the scope of the inventory are defined as follows by ISO 14064-1 classification:

**TABLE 2 Data Points and Data Sources**

| ACTIVITIES | VERİ NOKTALARI | VERİ KAYNAKLARI |
|---|---|---|
| **Direct Activities** | | |
| Stationary Combustion | Fuel consumption for heating purposes | *IPCC 2006 Table 2.3 AR6* |
| Mobile Combustion | Moving fuel consumption | *IPCC 2006 Table 3.2.1/3.2.2 and 3.3.1 AR6* |
| Anthropogenic Emissions | Refrigerant inventory<br>Fire extinguisher gas inventory<br>Transformer breaker gas inventory | *IPCC 2019 Table 7.9 AR6* |
| **Energy Indirect Activities** | | |
| Purchased Electricity | Electricity purchase records | *Türkiye Electricity Production and Electricity Consumption Point Emission Factors* |
| Other Purchased Energy | Energy purchase records | *DEFRA 2023* |
| **Logistics Indirect Activities** | | |
| Transportation of Input Material | Purchasing and logistics records | *DEFRA 2023* |
| Transportation of Sold Material | Sales and logistics records | *DEFRA 2023* |
| Personnel Services | Service company agreement | *DEFRA 2023* |
| Flight Records | Agency company records | *DEFRA 2023* |

| | | |
|---|---|---|
| Accommodation Information | Agency company records | *DEFRA 2023* |
| **Upstream Activities** | | |
| Purchase of consumables | Purchasing ERP systems breakdown | *Ecoinvent v3.9 / EPA* |
| Waste and wastewater management | Waste Declaration Form<br>Wastewater treatment discharge flow rate<br>Amount of packaging waste/domestic waste | *DEFRA 2023* |
| Water supply | Amount of water supplied from the network | *DEFRA 2023* |
| **Downstream Activities** | | |
| Use of Products | | *DEFRA 2023* |
| Waste Process of Products | | *DEFRA 2023* |
| Operational Lease | | *EPA* |

## EMISSION VALUES

The values obtained within the scope of greenhouse gas inventory reporting are listed below:

Emission values have been prepared by the ISO 14064-1 standard and data regarding the GHG Protocol program are also included:

## Emission Values Within the Scope of GHG Protocol

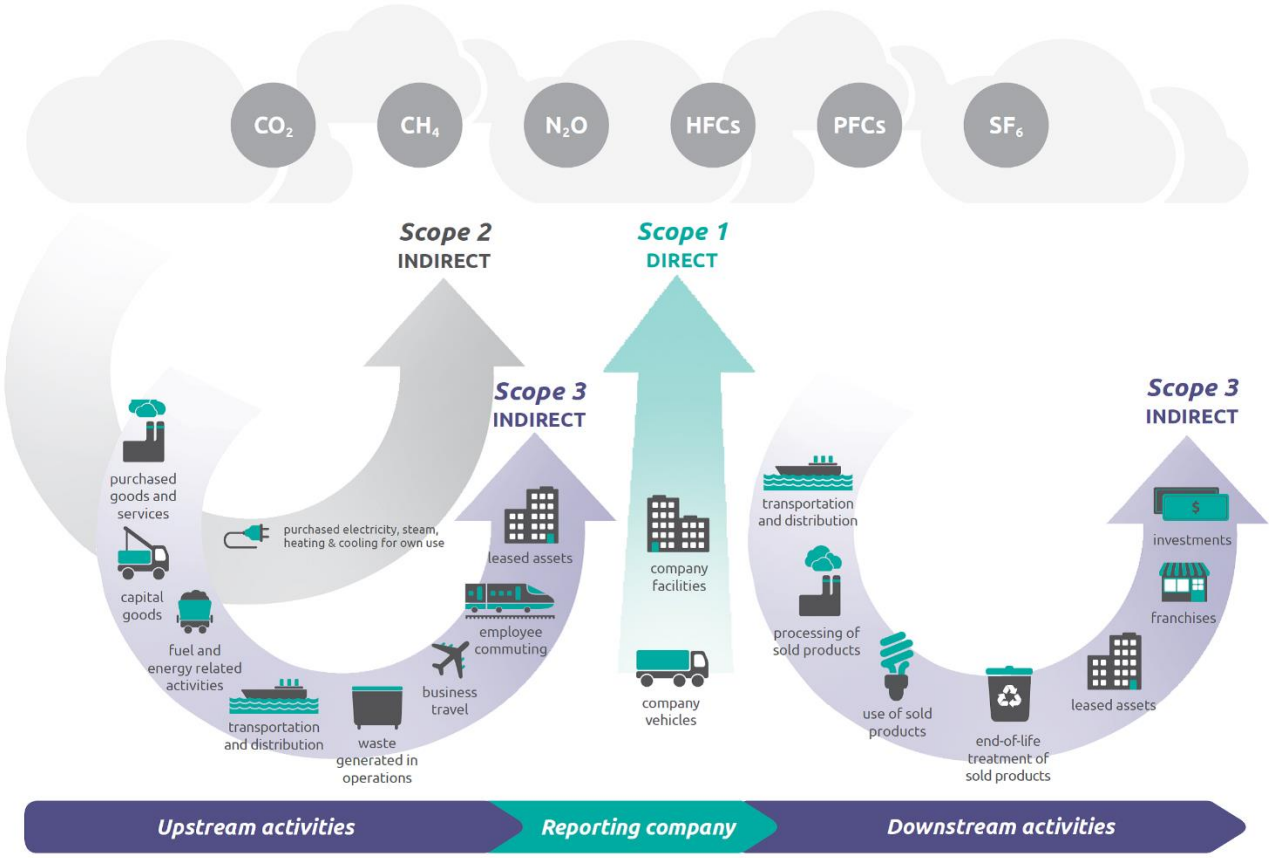


**TABLE 3 Scope Based Emission Values**

| *Reporting Scopes* | *Values in Tons CO2e* | *Values in Tons CO2e (Salihli)* | *Values in Tons CO2e (Aliağa)* |
|---|---|---|---|
| *SCOPE 1* | 260,68 | 191,11 | 69,57 |
| *SCOPE 2* | 1.178,67 | 941,31 | 237,36 |
| *SCOPE 3* | 308.080,74 | 212.351,44 | 95.729,30 |
| ***Total*** | **309.520,09** | **213.483,86** | **96.036,23** |

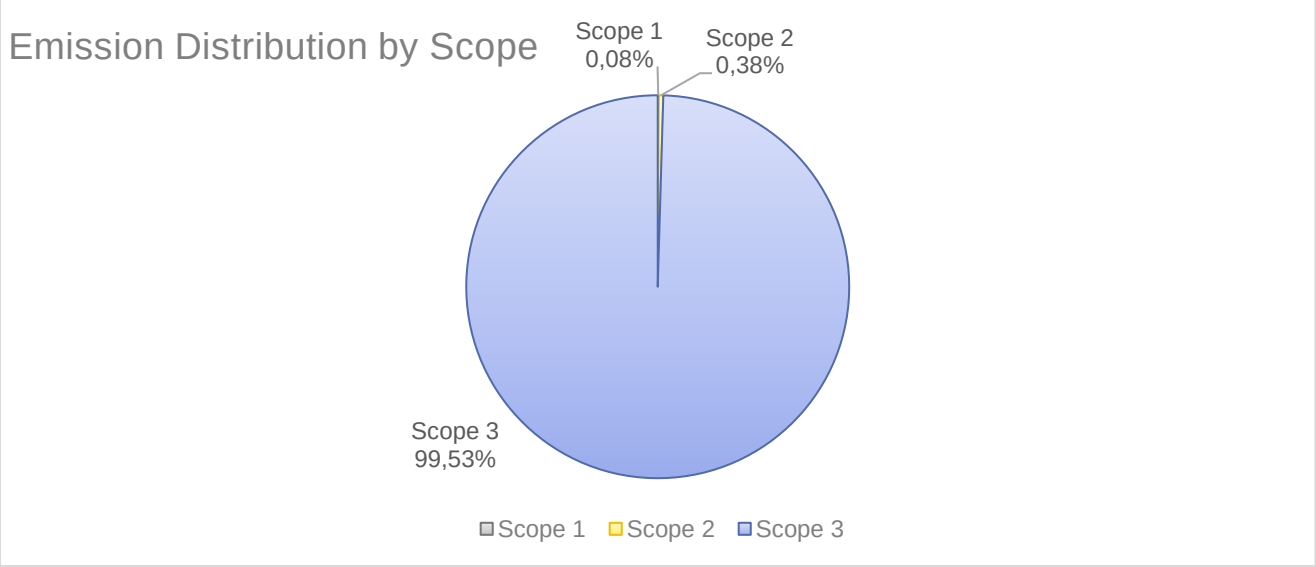


**FIGURE 5 *EMISSION DISTRIBUTION BY SCOPE (TOTAL)***

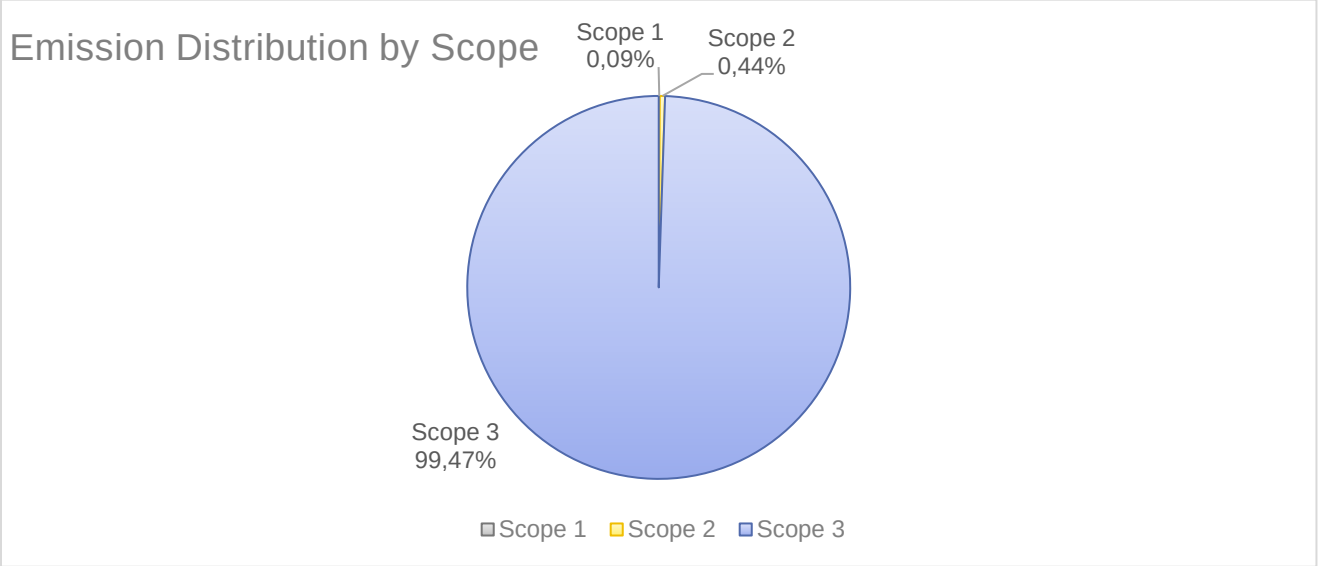


**FIGURE 6 *EMISSION DISTRIBUTION BY SCOPE (SALIHLI)***

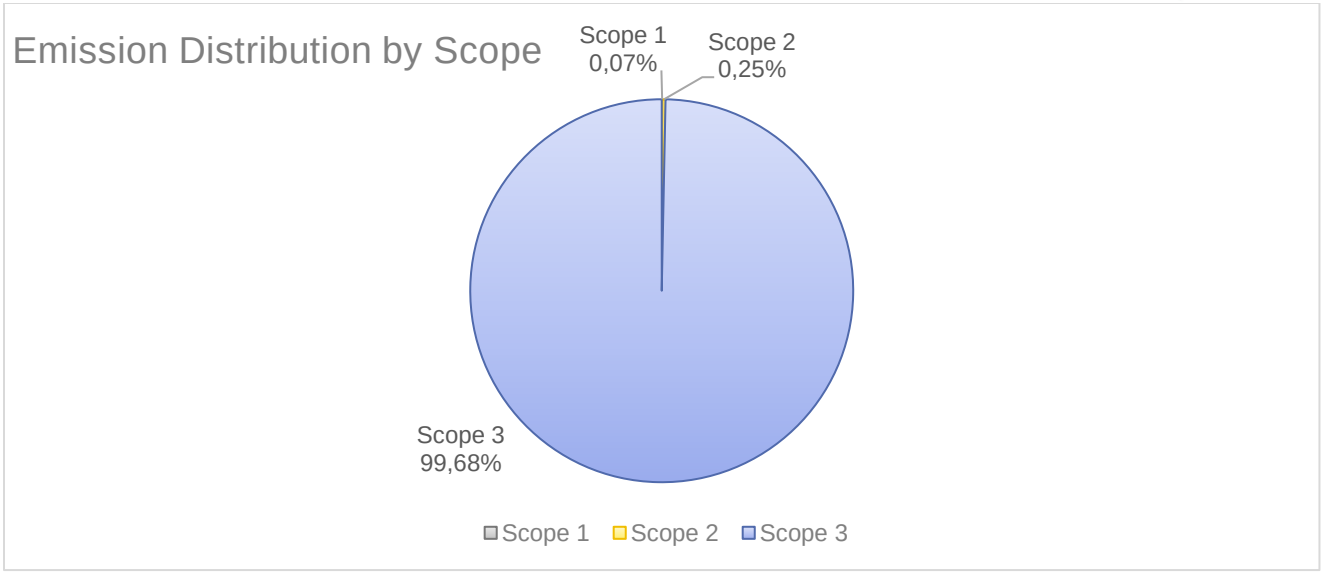


FIGURE 7 *EMISSION DISTRIBUTION BY SCOPE (ALIAĞA)*

## Emission Values Within the Scope of ISO 14064-1

**TABLE 4 Category-Based Emission Values**

| *Reporting categories* | *Values in Tons CO2e (Total)* | *Values in Tons CO2e (Salihli)* | *Values in Tons CO2e (Aliağa)* |
|---|---|---|---|
| *Category 1 Direct Activities* | 260,68 | 191,11 | 69,57 |
| *Category 2 Energy Indirect Activities* | 1.178,67 | 941,31 | 237,36 |
| *Category 3 Logistics Indirect Activities* | 27.739,35 | 21.172,36 | 6.566,99 |
| *Category 4 Upstream Indirect Activities* | 273.719,03 | 186.069,77 | 87.649,26 |
| *Category 5 Downstream Indirect Activities* | 6.504,50 | 5.015,18 | 1.489,32 |
| *Category 6 Other Indirect Activities* | 117,87 | 94,13 | 23,74 |
| ***Total*** | **309.520,09** | **213.483,86** | **96.036,23** |

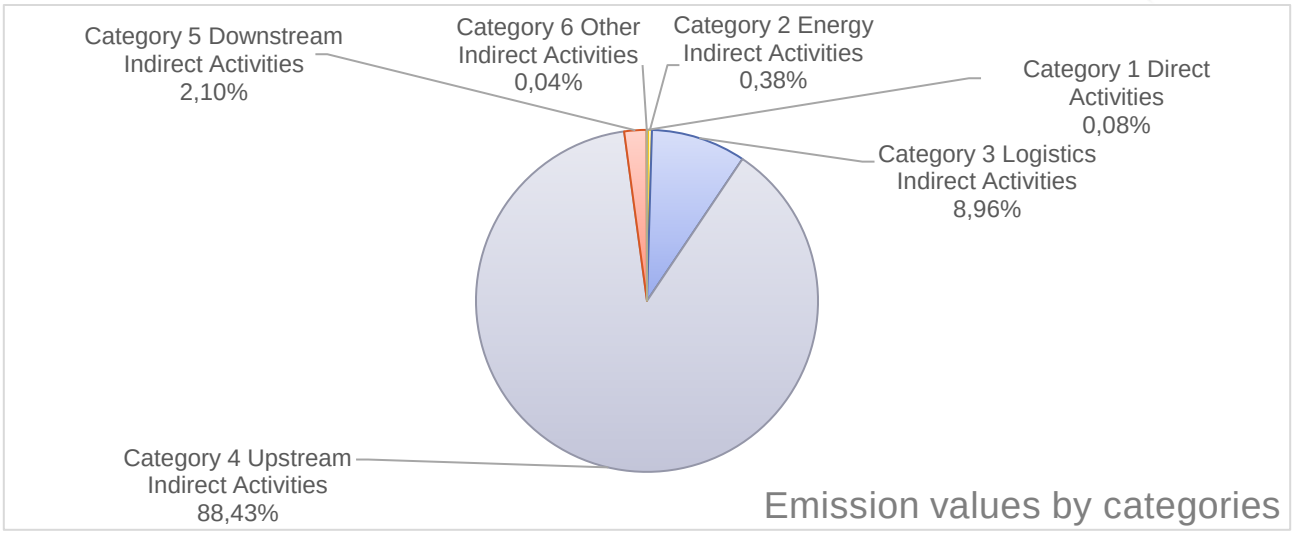


**FİGURE 8 EMISSION VALUES BY CATEGORIES**

## TABLE 5 Emission Values Based on Sub-Category (TOTAL)

| No | Subcategory Definitions | $tCO_2$ | $tCH_4$ | $tN_2O$ | tHFC | tPFC | tSF6 | tNF3 | $tCO_2$ eq. |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | Direct emissions from stationary combustion | 3,00 | 0,00 | 0,00 | | | | | 3,00 |
| 1.2 | Direct emissions from mobile combustion | 237,99 | 0,39 | 7,54 | | | | | 245,92 |
| 1.4 | Direct fugitive emissions arise from the release of greenhouse gases in anthropogenic systems | 0,00 | | | 8,77 | | 2,99 | | 11,76 |
| 2.1 | Indirect emissions from imported electricity | 1.178,67 | - | - | | | | | 1.178,67 |
| 3.1 | Emissions from Upstream transport and distribution of goods | 9.414,80 | 4,47 | 218,65 | | | | | 9.637,92 |
| 3.2 | Emissions from Downstream transport and distribution of goods | 17.591,68 | 4,07 | 266,90 | | | | | 17.862,64 |
| 3.3 | Emissions from employee commuting include emissions | 0,61 | 0,00 | 0,01 | | | | | 0,62 |
| 3.5 | Emissions from business travel | 180,00 | 0,01 | 1,42 | | | | | 181,44 |
| 3.6 | Emissions from the transportation of fuels | 56,73 | | | | | | | 56,73 |
| 4.1 | Emissions from purchased goods | 270.387,58 | - | - | | | | | 270.387,58 |
| 4.2 | Emissions from capital goods | 975,88 | | | | | | | 975,88 |
| 4.3 | Emissions from disposal of solid and liquid waste | 78,83 | - | - | | | | | 78,83 |
| 4.5 | Emissions from the use of services that are not described in the above subcategories (consulting, cleaning, maintenance, mail delivery, bank, etc.) | 2.276,74 | | | | | | | 2.276,74 |
| 5.3 | Emissions from end of life stage of the product | 6.504,50 | - | - | | | | | 6.504,50 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.1 | Indirect emissions from imported electricity | 117,87 | | | | | | | 117,87 |
| | Total | **309.004,87** | **8,94** | **494,52** | **8,77** | | **2,99** | | **309.520,09** |

## TABLE 6 Emission Values Based on Sub-Category (SALIHLI)

| No | Subcategory Definitions | $tCO_2$ | $tCH_4$ | $tN_2O$ | tHFC | tPFC | tSF6 | tNF3 | $tCO_2$ eq. |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | Direct emissions from stationary combustion | 2,09 | 0,00 | 0,00 | | | | | 2,09 |
| 1.2 | Direct emissions from mobile combustion | 174,39 | 0,29 | 2,57 | | | | | 177,25 |
| 1.4 | Direct fugitive emissions arise from the release of greenhouse gases in anthropogenic systems | 0,00 | | | 8,77 | | 2,99 | | 11,76 |
| 2.1 | Indirect emissions from imported electricity | 941,31 | - | - | | | | | 941,31 |
| 3.1 | Emissions from Upstream transport and distribution of goods | 9.377,65 | 4,41 | 214,07 | | | | | 9.596,14 |
| 3.2 | Emissions from Downstream transport and distribution of goods | 11.282,33 | 2,02 | 185,94 | | | | | 11.470,30 |
| 3.3 | Emissions from employee commuting include emissions | 0,60 | 0,00 | 0,01 | | | | | 0,61 |
| 3.5 | Emissions from business travel | 63,22 | 0,01 | 0,49 | | | | | 63,71 |
| 3.6 | Emissions from the transportation of fuels | 41,61 | | | | | | | 41,61 |
| 4.1 | Emissions from purchased goods | 182.900,47 | - | - | | | | | 182.900,47 |
| 4.2 | Emissions from capital goods | 967,29 | | | | | | | 967,29 |
| 4.3 | Emissions from disposal of solid and liquid waste | 73,73 | - | - | | | | | 73,73 |
| 4.5 | Emissions from the use of services that are not described in the above subcategories (consulting, cleaning, maintenance, mail delivery, bank, etc.) | 2.128,28 | | | | | | | 2.128,28 |
| 5.3 | Emissions from end of life stage of the product | 5.015,18 | - | - | | | | | 5.015,18 |
| 6.1 | Indirect emissions from imported electricity | 94,13 | | | | | | | 94,13 |
| | Total | **213.062,28** | **6,73** | **403,09** | **8,77** | | **2,99** | | **213.483,85** |

## TABLE 7 Emission Values Based on Sub-Category (ALIAGA)

| No | Subcategory Definitions | $tCO_2$ | $tCH_4$ | $tN_2O$ | tHFC | tPFC | tSF6 | tNF3 | $tCO_2$ eq. |
|---|---|---|---|---|---|---|---|---|---|
| 1.1 | Direct emissions from stationary combustion | 0,91 | - | - | | | | | 0,91 |
| 1.2 | Direct emissions from mobile combustion | 63,61 | 0,10 | 4,96 | | | | | 68,67 |
| 1.4 | Direct fugitive emissions arise from the release of greenhouse gases in anthropogenic systems | 0,00 | | | 0,00 | | | | 0,00 |
| 2.1 | Indirect emissions from imported electricity | 237,36 | - | - | | | | | 237,36 |
| 3.1 | Emissions from Upstream transport and distribution of goods | 37,15 | 0,06 | 4,58 | | | | | 41,79 |
| 3.2 | Emissions from Downstream transport and distribution of goods | 6.309,35 | 2,04 | 80,95 | | | | | 6.392,34 |
| 3.3 | Emissions from employee commuting include emissions | 0,01 | 0,00 | 0,00 | | | | | 0,01 |
| **3.5** | Emissions from business travel | 116,79 | 0,01 | 0,94 | | | | | 117,73 |
| 3.6 | Emissions from the transportation of fuels | 15,11 | | | | | | | 15,11 |
| 4.1 | Emissions from purchased goods | 87.487,11 | - | - | | | | | 87.487,11 |
| 4.2 | Emissions from capital goods | 8,59 | | | | | | | 8,59 |
| **4.3** | Emissions from disposal of solid and liquid waste | 5,10 | | | | | | | 5,10 |
| 4.5 | Emissions from the use of services that are not described in the above subcategories (consulting, cleaning, maintenance, mail delivery, bank, etc.) | 148,45 | | | | | | | 148,45 |
| 5.3 | Emissions from end of life stage of the product | 1.489,32 | - | - | | | | | 1.489,32 |
| 6.1 | Indirect emissions from imported electricity | 23,74 | | | | | | | 23,74 |
| | Total | **95.942,59** | **2,21** | **91,43** | **0,00** | | | | **96.036,23** |

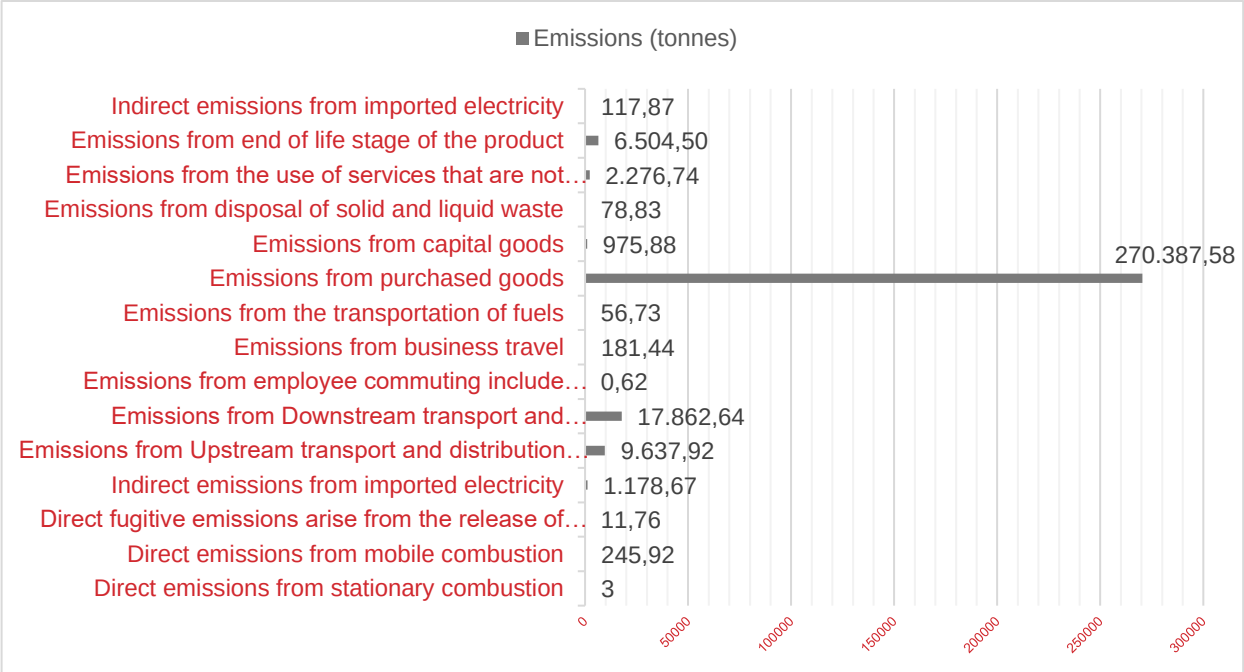


**Figure 9 EMISSION VALUES IN TONS**

## Distribution of Direct / Indirect Emissions

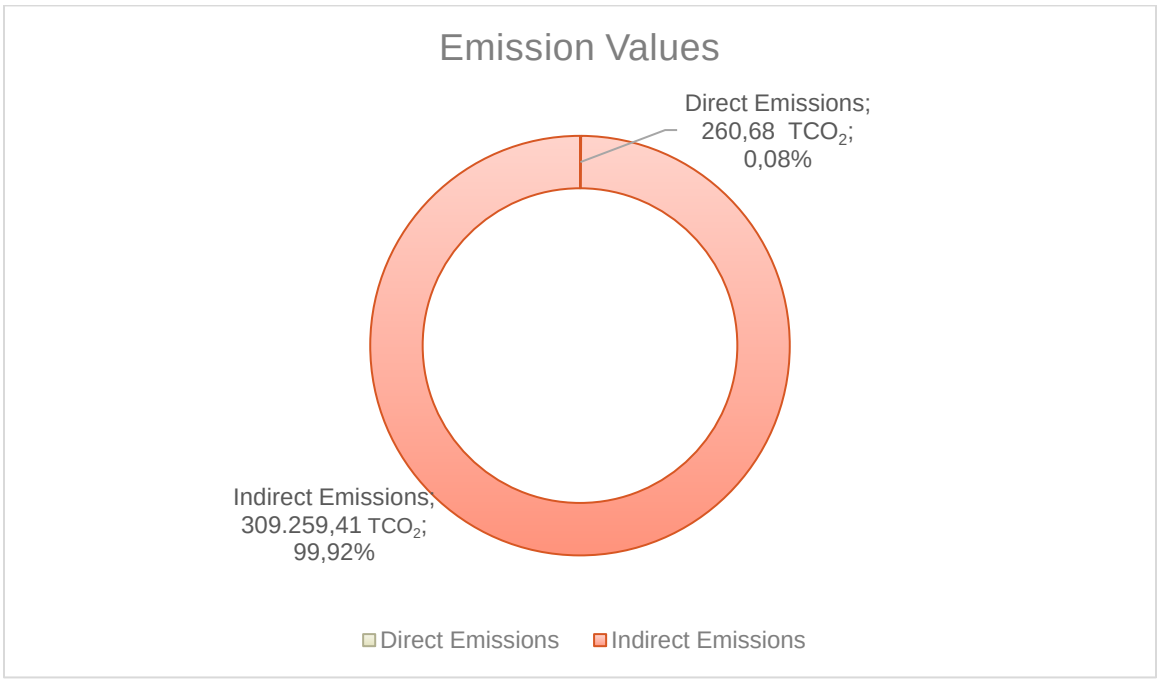


**FIGURE 10 EMISSION VALUES**

# CALCULATION OF GREENHOUSE GAS EMISSIONS

The results obtained in the calculations are verified according to Excel data. Excel software generally performs calculations;

Total CO2 eq. = Activity Data x Emission Factor

the formula was used. The values obtained as a result of the calculations are converted into tons of CO2 equivalent according to the IPCC's latest GWP values. For GWPs, IPCC AR6 100-year impact is taken as a reference. In cases where national resources are not sufficient in emission factor selection, international factors (Tier 1) are used.

## MANAGEMENT OF REPORTING

The greenhouse gas inventory report was analyzed annually within the period created. This report prepared by Sagenit is also kept with raw data ready for verification through the verifier organization. The verification opinion can be obtained with the expression "Reasonable Confidence Level", which has the highest reliability. Within the scope of verifier qualification, it is implemented by the National Accreditation Agency TÜRKAK according to the accreditation rules, and an internationally valid opinion can be obtained by including the accreditation mark in the verification opinion.

## UNCERTAINTY ANALYSIS

The data systematic applied in the calculations is prepared according to the specific data infrastructure in the organization. In this context, the uncertainty value in the transmission of data and selection of emission factors is analyzed by ISO Guide 98-3. Uncertainty analysis is an integral part of the calculation of the emissions report.

## MANAGEMENT OF EMISSIONS

As can be seen from the calculations, the highest emission value came from the category 4 indirect greenhouse gas emissions section. This part constitutes 88,43% of all emissions.

As a result of calculating greenhouse gas emissions occurring in the production process and supply chain, it is observed that factors such as energy consumption, material resources, waste management and transportation have a great impact. The distribution of emissions will contribute to the organization's determination of current status and future environmental goals.

The effects are evaluated below:

Logistics and Transportation Optimization: Increasing fuel efficiency during product transportation and distribution processes can be effective in reducing carbon emissions. The company can optimize routes, use technologies to increase the efficiency of transport vehicles and evaluate alternative transport methods.

Energy Efficiency: Increasing energy efficiency in production processes is an important step in reducing carbon footprint. The company can use energy-efficient machines, improve the production line and adopt energy management systems to optimize energy consumption.

Waste Management and Recycling: Reducing the amount of waste and encouraging recycling is important for environmental sustainability. The company can take measures to minimize the amount of waste in production processes and cooperate with recycling systems.

Carbon Disclosure Project: Monitoring and reporting carbon emissions is important for providing and finding the company's carbon footprint. The company can participate in carbon transparency initiatives and regularly monitor its carbon emissions. This is an important step in assessing progress and achieving goals.

Green Suppliers and Collaboration: The company can collaborate with green events that have similar goals regarding sustainability of growth. This retail may provide environmentally friendly prices or offers or adopt sustainable productions. Collaboration with green processes can play an important role in reducing the carbon footprint.

Product Recycling and Waste Management: The Company may take into account any unwanted recycling processes and waste management that may arise. It enables the recycling of products, repartition of materials and reduction of waste. It is also important to provide information on how to recycle on an ongoing basis.

Employee Awareness and Training: The company can organize training and awareness programs to increase employees' activities regarding sustainability. Raising awareness among employees about energy saving, waste management and sustainable practices ensures their active participation in the company's efforts to eliminate its carbon footprint.

Continuous Improvement and Monitoring: The company must constantly review its strategies, evaluate opportunities and monitor progress to leverage its carbon footprint. Regular organization of data is important for tracking carbon emissions and performance rating. Based on this, the company can take effective actions, develop new strategies to minimize its carbon footprint, and make progress towards its sustainability. The ongoing process of continuity and monitoring is an important tool to increase the company's sustainability quantification and create a more sustainable business model in the future.