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Scope 1

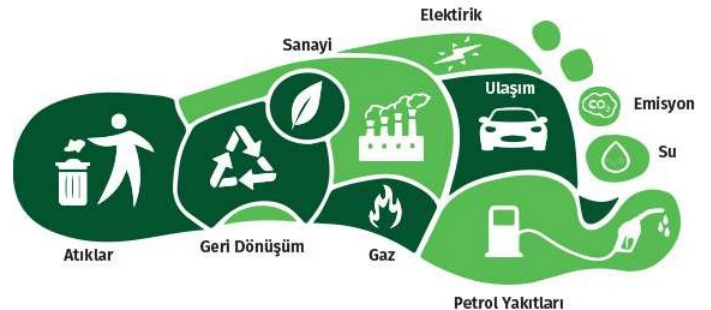
Greenhou

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Scope 2

Scope 3

Report (January 1, 2024 – December 31, 2024)



Foreword

The Greenhouse Gas Inventory Report has been prepared in accordance with clause 7.3.1 of the ISO 14064-1 "Greenhouse Gases - Part 1: Specifications and Guidelines for the Accounting and Reporting of Greenhouse Gas Emissions and Removals at the Organizational Level" standard. The inventory was created based on the IPCC methodologies and national reference calculations valid during the inventory period. In this study, greenhouse gases generated within the scope of the Organization's activities were considered as a new performance criterion within the framework of environmental management.

PREPARATION OF THE GREENHOUSE GAS EMISSION REPORT

What is a Carbon Footprint?

Carbon footprint is a term used to describe the amount of carbon emitted into the atmosphere as a result of each person's transportation, heating, energy consumption, or any product they purchase. In other words, it refers to the total amount of carbon gas released into the atmosphere during the production of the energy required for every product we purchase or every activity we carry out.

Climate change, which has been ongoing for millions of years under the influence of natural processes, has increased its impact and damage even more today due to human-induced environmental pollution. It is also true that every individual and organization has a responsibility to pass on the clean and healthy environment we have inherited from the past to future generations as it should be. In this context, it has become an important task to calculate and reduce our carbon footprint, both to demonstrate our sensitivity to the environment and climate and to make a concrete contribution to the measures taken against environmental pollution. Since the carbon footprint is primarily defined in terms of energy derived from fossil fuels, reducing the carbon footprint also means reducing or optimizing energy consumption. This can be achieved through a package of measures that initiates a cycle of reducing energy costs, which is crucial for businesses. Carbon footprint initiatives essentially signify the development of a new energy usage culture for organizations.

In addition to each activity having a different carbon footprint, different factors must also be calculated in studies conducted on an individual or company basis. Various methods and standards have been developed internationally for carbon footprint calculations. The main standards that address the six greenhouse gases (CO₂, CH₄, N₂O, PFC, HFC, SF₆) assessed under the Kyoto Protocol include the methods published by the Intergovernmental Panel on Climate Change (IPCC), as well as the GHG Protocol, ISO 14064, CDP, and PAS 2050.

Greenhouse Gas Calculation - Processes Followed - Determining the Purpose

The purpose is to determine the objectives to be achieved through carbon footprint calculation. For example, carbon footprint results can be used to set CO₂ reduction targets and identify possible CO₂ reduction measures.

Defining Boundaries

Once the purpose has been determined, various choices must be made to define the boundaries for the carbon footprint (provided that the boundaries specified in the applicable standards are adhered to). The most commonly used scope for corporate reporting is the operational control scope. This means that the organization will calculate and take responsibility for the carbon footprint generated by all activities under its daily operational control. Some emissions outside the company's own activities will be considered within this scope.

Organization boundaries determination financial and administrative control

Since the organization is responsible for determining the scope of the calculation, the approach method used to calculate emissions has been selected as the 'control approach'. Any changes made to the selected method will be declared in the next year's greenhouse gas report and the calculations will be renewed for the base year.

Data Collection and Application of Emission Factors

Once the boundaries and scope of the carbon footprint have been agreed upon, data on activities can be collected, and emission factors and global warming potentials can be calculated. Collecting information in this way is called inventorying. Emission factors may vary from country to country and may change over time. There are many resources available for emission factors, such as the IPCC guidelines and the WBCSD's GHG Protocol.

Evaluation of Results and Reporting of the Footprint

The report should be transparent, and the choices and assumptions made should be clearly stated.

Selection of the Calculation Method

The IPCC, Tier-1 Methodology, and Tier-2 Methodology, which includes national activity data, were used in greenhouse gas calculations. Since Turkey Electricity Generation Inc. production data was used in electricity emission factor calculations, the Tier-2 methodology is used for Scope 2 energy indirect greenhouse gas emissions. Accordingly, the following formulas and variables are used in the calculations of Scope-1 and Scope-2 greenhouse gas sources. Scope-3 emissions are also calculated according to the following formula.

Emissions, fuel = CO₂ emissions, fuel + CH₄ emissions, fuel + N₂O emissions, fuel
CO₂ emissions, fuel = Consumption Quantity, fuel X CO₂ Emission Factor, fuel

A calculation methodology has been selected because there is insufficient technological infrastructure to measure all emission sources. A measurement methodology has not been used. This calculation method may reflect uncertainty in the results. Energy requirements are met solely from electrical energy. Energy sources classified as biomass are not used. For this reason, no calculations related to biomass use have been made.

Selection of Greenhouse Gas Emission Factors

Calculated separately in CO₂ equivalent tons, the greenhouse gas emission value resulting from the consumption of externally supplied electricity was determined according to the TIER 2 approach, as the emission factor value for Turkey was determined from www.iea.org/CO2_highlights. Calculated separately in CO₂ equivalent tons. Since the greenhouse gas emission value resulting from the diesel consumption of company vehicles has not been determined for Turkey at www.iea.org/CO2_highlights, the calculation was made according to the TIER 1 approach.

In this study, greenhouse gas emissions (carbon footprint) for the relevant organization were calculated separately using the shared 2024 data, covering the period from January 1, 2024, to December 31, 2024. The 2024 year was taken as the 'base year' to cover this period, and the corporate carbon footprint was calculated separately and then as a total.

GREENHOUSE GAS INVENTORY AND CORPORATE CARBON FOOTPRINT CALCULATION

Activity	Activity Category	Activity Data	Scope	Greenhouse Gases
Heating System	Fixed Combustion	Natural Gas (m³)	Direct (Scope 1)	CO2 CH4 N2O
Refrigerants	Leakage Emissions	Greenhouse gas kg (Not calculated)	Direct (Scope 1)	R410a
Passenger Vehicles	Mobile Combustion	Diesel Fuel (lt)	Direct (Scope 1)	CO2 CH4 N2O
Fire Extinguishers	Leakage Emissions	Fire Extinguishing Agent (kg)	Indirect (Scope 2)	FM200 CO2
Electricity Consumption	Electricity	Kwh	Indirect (Scope 2)	CO2
Transportation Activities	Mobile Combustion	Diesel (lt)	Indirect (Scope 3)	CO2 CH4 N2O
Non-hazardous Waste Recovery	Open Loop	Kg	Other Indirect (Scope 4)	CO2

Identification and Assumptions

Greenhouse Gas	Global Warming Potential (GWP)
CO2	1
CH4	28
N2O	265

In the calculation of greenhouse gas emissions from natural gas sources;

Natural gas consumption activity data is obtained by reading the natural gas meter for natural gas supplied from the main network.

In calculating fugitive emissions:

The emission factor for R407C refrigerant gas has been determined under the Kyoto Protocol. Data was obtained from the EPA Greenhouse Gas Emission Calculator data system.

The annual loss/leakage amount for air conditioners is assumed to be 4.5% of the gas filled. (Uncertainty = $\pm 10\%$) Source: "IPPC-Special Report on Safeguarding the Ozone and the Global Climate System-Chapter 5: Residential and Commercial Air

In the calculation of fire suppression systems;

Leakage rates for portable CO₂ fire extinguishers are accepted as 4% of the gas weight in the cylinder (Uncertainty= $\pm 2\%$). "Source: IPPC-Special Report on Safeguarding the Ozone and the Global Climate System- Chapter 9: Fire Protection- Table 9.2"

In the calculation of CO₂ systems used for cooling purposes;

Portable liquid CO₂ purchases have been added to the calculations as direct carbon emissions. The emission factors for diesel fuel in the report are from the "EPA- Greenhouse Gas Emission Calculator tables

Direct Greenhouse Gas Emissions (Scope 1)

Heating System

Total natural gas consumed by the heating system			10488	m³
Activity data		Emission factor	Emission amount	
10488	m³	E.F CO2 =	2.040	kg/m³
21,395.520	kg CO2-equivalent			
10,488	m³	E.F CH4 =	0.003	kg/m³
31.464	kg CO2-equivalent			
10488	m3	E.F N2O =	0.001	kg/m³
10.488	kg CO2-equivalent			
TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT FROM HEATING			21,437.472	kg CO2-eq

Air Conditioning System

Since there was no greenhouse gas emission leakage from air conditioners in 2024, it was not included in the calculation.

Passenger Vehicles

Passenger vehicles and other vehicles are not used in 2024. There is no vehicle use within the islands. There is no consumption for the generator in 2024. There is no generator in the facility.

Total diesel fuel consumption from vehicles and generators			1000	lt
Activity data		Emission factor	Emission amount	
1000	lt	E.F CO2 =	2.51	kg/lt
2,510,000	kg CO2-equivalent			
1000	lt	E.F CH4 =	0.00029	kg/lt
0.290	kg CO2-equivalent			
1000	lt	E.F N2O =	0.033	kg/lt
33,000	kg CO2-equivalent			
TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT FROM VEHICLES AND GENERATORS			2,543.290	kg CO2-eq

Fire Extinguishers

It is estimated that CO2 will leak from fire extinguishers in 2024.

Fire Extinguishers Total number of fire extinguishers replaced during the year kg * number					
66 kg					
Type of extinguisher	Number of cylinders replaced	Cylinder kg	Total kg	Activity Data	Emission amount
CO2 Tube	10	6	60 kg	1 kg/	60,000 kg CO2-equivalent
HFC-227ea (FM200)	1	6	6 kg	3,350, kg/	3,350,000 kg CO2-equivalent
TOTAL EQUIVALENT GREENHOUSE GAS EMISSIONS FROM FIRE EXTINGUISHERS					3,410,000 kg CO2-eq

Indirect Greenhouse Gas Emissions - Electricity Consumption (Scope 2)

Electricity consumption total electricity consumed amount		141,961	KWH
Activity data	Emission factor	Emission amount	
141961 KWH	0.493 CO2-equivalent/kWh	69,987	kg CO2-eq
TOTAL EQUIVALENT GREENHOUSE GAS EMISSIONS FROM ELECTRICITY CONSUMPTION			
		69,987	kg CO2-eq

Transportation Activity (Scope 3)

Total business travel km			100	km
Activity data		Emission factor	Emission amount	
1000 KM	EF.CO2 =	0.080 kg/km	80	kg CO2-equivalent
TOTAL KM EMISSION AMOUNT FROM BUSINESS TRAVEL			80	kg CO2-eq

Recovery/Disposal of Non-Hazardous Waste (Scope 3)

Waste Type	Waste Quantity (kg)	Emission Factor	Annual CO ₂ Emissions (kg)
Organic Waste	714.93	0.446	318.85878
Paper Waste	3421.33	0.022	75.26926
Plastic Waste	2650	0.022	58.3
Mixed Packaging	600	0.022	13.2
Total			465.62804

TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT

TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT		
TOTAL EQUIVALENT FROM HEATING Greenhouse Gas Emission Quantity	11,399.388	CO ₂ (kg)
EMISSIONS FROM VEHICLES AND GENERATORS TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT	0.000	CO ₂ (kg)
TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT FROM FIRE EXTINGUISHERS	3410.00	CO ₂ (kg)
TOTAL EQUIVALENT GREENHOUSE GAS EMISSION AMOUNT FROM ELECTRICITY CONSUMPTION	15,165.173	CO ₂ (kg)
TOTAL KM EMISSION AMOUNT FROM BUSINESS TRAVEL	40	CO ₂ (kg)
Recovery/Disposal of Non-Hazardous Waste (Scope 3)	568.2	CO ₂ (kg)

