EMS Manager: Robert J. Santos
Prepared: 2024-04-04

MetroStar

Stationary Combustion Scope 1, 2, & 3 Emissions Report

YEAR 2023

MetroStar Systems
1856 Old Reston Ave., Ste. #100
Reston, VA 20190

bsi. ISO 14001 Environmental Management

CONTENTS

TABLE 1: SIGN-OFF & VERSIONING

AUTHOR	SIGNED-OFF BY	DATE	VERSION	CHANGE REFERENCE
Venkatesan Krishnaswamy	Robert Santos	8/10/2023	1.0	Final for Approval
Venkatesan Krishnaswamy	Robert Santos	3/12/2024	1.1	Final for Approval

TABLE 2: REFERENCED DOCUMENTS

DOCUMENT	OWNER
2 MetroStar GHG Emissions.xlsm	Venkatesan Krishnaswamy
MetroStar EMS Workbook_Template.xlsx	Venkatesan Krishnaswamy
GHG Emissions Calculation Tool_0.xlsx	Venkatesan Krishnaswamy

1 SCOPE 1 INTRODUCTION

1.1 PURPOSE

To report the annual Stationary Combustion - Scope 1 Emissions Report.

1.2 INTENDED AUDIENCE

List the intended audience for the content of this document.

1.3 GUIDANCE

Includes fuel consumption at a facility to produce electricity, steam, heat, or power. The combustion of fossil fuels by natural gas boilers, diesel generators and other equipment emits carbon dioxide, methane, and nitrous oxide into the atmosphere.

Data required:

- Fuel type
- Fuel Usage
- Units for usage (volume or weight)

Emissions $_{GHG, fuel}$ **=** **Fuel Consumption** $_{fuel}$ * **Emission Factor** $_{GHG, fuel}$

2 SCOPE 1 EMISSIONS DATA

1.1 METROSTAR DATA

LOCATION: RESTON, VA | BASE DATA | 2022 NATRUAL GAS CONSUMPTION

USER-SUPPLIED DATA					
Facility ID	Year	Custom Emission Factors?	Fuel	Amount of Fuel	Units (e.g., kg or kWh)
1	2022	No	Natural Gas	**4238.3**	Therm
2	2023	No	Natural Gas	**3390.4**	Therm

2.2 GHG EMISSIONS

GHG EMISSIONS (Tons $CO_2$3)					
Year	CO_2 (Tons)	CH_4 (Tons)	N_2O (Tons)	CO_2e (Tons)	Biofuel CO_2 (Tons)
2022	22.488	0.0004238	0.0000424	22.512	**0.000**
2023	17.989	0.0003390	0.0000339	18.008	**0.000**

Year	Total GHG Emissions from Fossil Fuels (Tons CO_2e):	Total CO_2 Emissions from Biomass (Tons):
2022	**22.51**	**0.00**
2023	**18.008**	**0.00**

2.3 GHG EMISSIONS

EMISSION FACTOR	
EF (kg CO_2e / unit)	Source
53.1145	EPA, "Emission Factors for Greenhouse Gas Inventories," Table 1 Stationary Combustion Emission Factors, March 9, 2018 (https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub).

3 SCOPE 2 EMISSIONS DATA

3.1 GUIDANCE

The Indirect Emissions from Purchased Electricity Guidance document provides guidance for quantifying two scope 2 emissions totals, using a location-based method and a market-based method. The organization should quantify and report both totals in its GHG inventory. The location-based method considers average emission factors for the electricity grids that provide electricity. The market-based method considers contractual arrangements under which the organization procures electricity from specific sources, such as renewable energy.

3.2 METROSTAR DATA

LOCATION: RESTON, VA | BASE DATA | 2022 NATRUAL GAS CONSUMPTION

Source	Source	Source	eGRID Subregion	Electricity
ID	Description	Area (sq ft)	*Where electricity is consumed*	Purchased
				(kWh)
2021	Reston Office	67,952	SRVC (SERC Virginia / Carolina)	**808,181**
2022	Reston Office	67,952	SRVC (SERC Virginia / Carolina)	**714,320**
2023	Reston Office	67,952	SRVC (SERC Virginia / Carolina)	**705,573**

3.3 MARKET BASED

MARKET BASED - EMISSIONS			
	CO_2	CH_4	N_2O
Year	Emissions	Emissions	Emissions
	(lb)	(lb)	(lb)
2021	516,993.4	42.0	5.7
2022	456,950.5	37.1	5.0
2023	451,355.0	36.7	4.9

3.4 LOCATION BASED

LOCATION BASED - EMISSIONS			
	CO_2	CH_4	N_2O
Year	Emissions	Emissions	Emissions
	(lb)	(lb)	(lb)
2021	516,993.4	42.0	5.7
2022	456,950.5	37.1	5.0
2023	451,355.0	36.7	4.9

4 SCOPE 3 EMISSIONS DATA

4.1 GUIDANCE

Fuel consumption by vehicles used to conduct company-financed travel. Examples include commercial air travel and use of rented vehicles during business trips (travel using company-owned/leased vehicles are included in Scope 1).

Data required:

1. Method of travel
2. Travel distance and units/weight distance and units/passenger distance and units

Emissions GHG, fuel = Fuel Consumption fuel * Emission Factor GHG, fuel

- Emission factors database includes emission factors from EPA (US based) and DEFRA (UK based)
- US EPA is recommended for use in calculating emissions in the US; UK DEFRA is recommended for emission activities in the UK

4.2 TRANSPORTATION

Calendar Year	Category	Emissions Factor Dataset	Mode of Transport	Activity Type	Vehicle Type	Amount of Activity Type	Units of Measurement
2022	Business Travel	US EPA	Air	Distance	Air Travel – Short Haul (< 300 Miles)	**347,641**	Mile
2023	Employee Commute	US EPA	Car	Passenger Distance	Passenger Car A	**102,316.2**	Passenger-mile

	GHG EMISSIONS					EMISSION FACTOR	
Year	CO_2 (Tons)	CH_4 (Tons)	N_2O (Tons)	CO_2e (Tons)	Biofuel CO_2 (Tons)	EF ($kgCO_2e$/unit)	Source
2023	78.219225	0.001	0.002	78.918	**0**	0.227010676	EPA, "Emission Factors for Greenhouse Gas Inventories," Table 8 Business Travel and Employee Commuting, March 9, 2018 (https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub).
2023	35.094457	0.002	0.001	35.447	**0**	0.346447	EPA, "Emission Factors for Greenhouse Gas Inventories," Table 8 Business Travel and Employee Commuting, March 9, 2018 (https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub).

5 ABBREVIATIONS & DEFINITIONS

ABBREVIATION	KEY TERM	DEFINITION
EPA	NA	The Environmental Protection Agency protects people and the environment from significant health risks, sponsors and conducts research, and develops and enforces environmental regulations.
GHG	NA	Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrochlorofluorocarbons (HCFCs), ozone (O3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6).