

GHG Emissions Inventory Report

GHG Protocol Corporate Standard

Acme Manufacturing Corp

Reporting Period: January 01, 2024 - December 31, 2024

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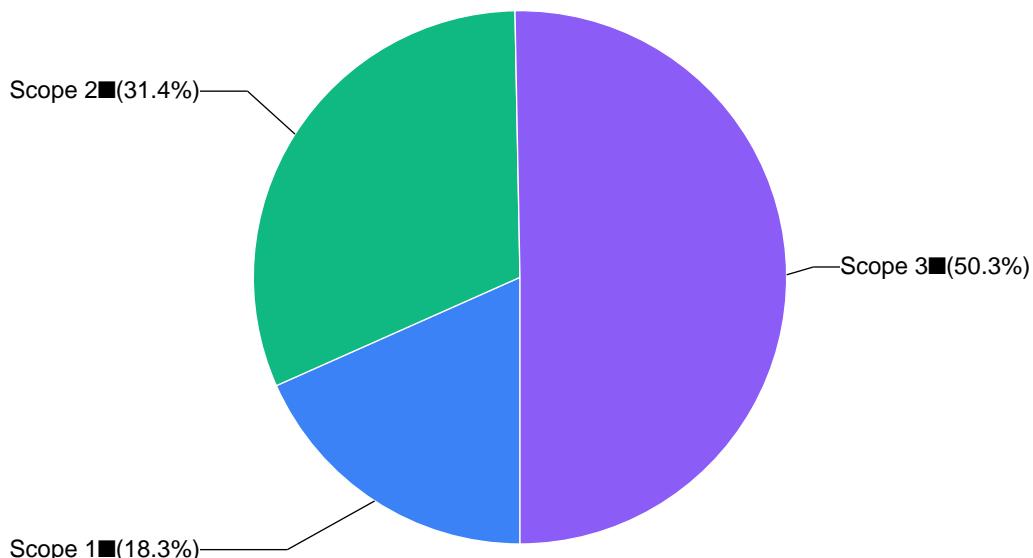
1. Executive Summary

This report presents the greenhouse gas (GHG) emissions inventory for Acme Manufacturing Corp for the reporting period January 01, 2024 - December 31, 2024. The inventory has been prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard.

Key Findings

- **Total GHG Emissions:** 249.70 tons CO₂e
- **Scope 1 Emissions:** 45.80 tons CO₂e (18.3% of total)
- **Scope 2 Emissions:** 78.30 tons CO₂e (31.4% of total)
- **Scope 3 Emissions:** 125.60 tons CO₂e (50.3% of total)
- **Carbon Offsets:** 32.90 tons CO₂e
- **Net Emissions:** 216.80 tons CO₂e
- **Change from Base Year (2020):** 11.0% decrease

Emissions by Scope



2. Organizational Boundaries

Acme Manufacturing Corp has defined its organizational boundaries using the **operational control** approach as outlined in the GHG Protocol Corporate Standard. Under this approach, the company accounts for 100% of GHG emissions from operations over which it has operational control.

Consolidation Approach

The operational control approach was selected because it:

- Aligns with the company's financial reporting boundaries
- Provides the most accurate representation of emissions under the company's control
- Enables effective emissions reduction strategies and accountability
- Is consistent with industry best practices

3. Operational Boundaries

The operational boundaries define which GHG emissions are included in the inventory. This inventory includes emissions from the following sources:

Scope 1: Direct Emissions

Direct GHG emissions from sources owned or controlled by the company, including:

- Stationary combustion (boilers, generators, furnaces)
- Mobile combustion (company vehicles and equipment)
- Process emissions (industrial processes)
- Fugitive emissions (refrigerants, HVAC systems)

Scope 2: Indirect Emissions from Energy

Indirect GHG emissions from the generation of purchased electricity, heat, steam, and cooling consumed by the company.

Scope 3: Other Indirect Emissions

All other indirect emissions that occur in the company's value chain. This inventory includes the following Scope 3 categories:

- Category 1: Purchased goods and services
- Category 5: Waste generated in operations
- Category 6: Business travel
- Category 7: Employee commuting

4. Emissions Summary

Scope	Emissions (tons CO2e)	Percentage of Total
Scope 1: Direct Emissions	45.80	18.3%
Scope 2: Indirect Emissions from Energy	78.30	31.4%
Scope 3: Other Indirect Emissions	125.60	50.3%
Total Emissions	249.70	100%
Less: Carbon Offsets	(32.90)	
Net Emissions	216.80	

Top Emission Sources

Emission Source	Emissions (tons CO2e)	Percentage
Electricity	78.30	31.3%
Purchased Goods	42.50	17.0%
Business Travel	35.80	14.3%
Employee Commuting	29.10	11.6%
Natural Gas	28.50	11.4%
Fleet Vehicles	17.30	6.9%
Waste	18.20	7.3%

5. Scope 1: Direct Emissions

Total Scope 1 emissions for the reporting period: **45.80 tons CO₂e**

Scope 1 emissions include all direct GHG emissions from sources owned or controlled by the company. These emissions are the result of activities such as combustion of fuels in stationary sources (boilers, furnaces), mobile sources (vehicles, equipment), process emissions, and fugitive emissions from refrigerants and other sources.

6. Scope 2: Indirect Emissions from Energy

Scope 2 emissions are reported using both location-based and market-based methods as recommended by the GHG Protocol Scope 2 Guidance.

- **Location-based method:** 78.30 tons CO₂e
- **Market-based method:** 65.20 tons CO₂e

Scope 2 emissions result from the generation of purchased electricity, heat, steam, and cooling consumed by the company. These are indirect emissions that occur at the facility where the energy is generated.

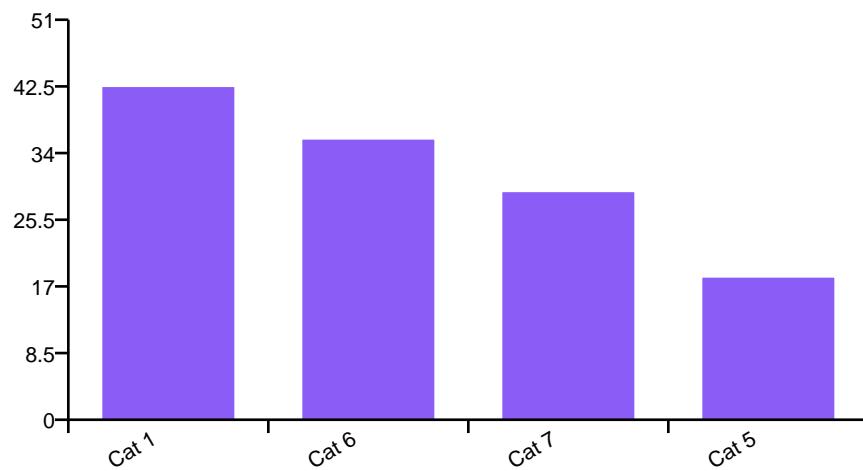
7. Scope 3: Other Indirect Emissions

Total Scope 3 emissions for the reporting period: **125.60 tons CO2e**

Scope 3 Category Breakdown

Category	Description	Emissions (tons CO2e)	Percentage
Cat 1	Purchased goods and services	42.50	33.8%
Cat 5	Waste generated in operations	18.20	14.5%
Cat 6	Business travel	35.80	28.5%
Cat 7	Employee commuting	29.10	23.2%

Top Scope 3 Categories



8. Progress Toward Targets

Acme Manufacturing Corp has committed to achieving net-zero emissions by 2050. Progress is measured against a base year of 2020.

- **Base Year (2020) Emissions:** 280.50 tons CO2e
- **Current Year Emissions:** 249.70 tons CO2e
- **Reduction Achieved:** 30.80 tons CO2e (11.0%)
- **Years to Net-Zero Target:** 26
- **Annual Reduction Needed:** 8.34 tons CO2e per year

9. Methodology and Assumptions

Calculation Methodology

All emissions calculations follow the GHG Protocol Corporate Accounting and Reporting Standard methodology. The general calculation approach is:

$$\text{GHG Emissions} = \text{Activity Data} \times \text{Emission Factor}$$

Where:

- **Activity Data:** Quantitative measure of activity (e.g., kWh electricity, liters fuel)
- **Emission Factor:** Factor that converts activity data to GHG emissions (e.g., kg CO₂e per kWh)

Emission Factors

Emission factors used in this inventory are sourced from recognized databases including:

- U.S. Environmental Protection Agency (EPA)
- UK Department for Environment, Food & Rural Affairs (DEFRA)
- International Energy Agency (IEA)
- Intergovernmental Panel on Climate Change (IPCC)

Total data points in inventory: **156**

Global Warming Potentials

Global Warming Potentials (GWPs) from the IPCC Fifth Assessment Report (AR5) are used to convert non-CO₂ gases to CO₂ equivalents over a 100-year time horizon.

10. Data Quality Assessment

The overall data quality score for this inventory is **3.80 out of 5.0**, corresponding to Tier 2 quality.

Data Quality Tier	Description	Percentage of Data
Tier 2	Secondary data, region-specific emission factors	100.0%

11. Verification Statement

This GHG emissions inventory has been verified by **Green Assurance Ltd** in accordance with ISO 14064-3 standards for greenhouse gas assertions.

The verification process included:

- Review of organizational and operational boundaries
- Assessment of data collection and calculation methodologies
- Verification of emission factors and activity data
- Review of supporting documentation and evidence
- Assessment of data quality and uncertainty

Verification Opinion: The reported emissions are materially correct and have been calculated in accordance with the GHG Protocol Corporate Standard.

12. Appendices

Appendix A: GHG Protocol Principles

This inventory has been prepared in accordance with the following GHG Protocol principles:

- **Relevance:** Ensure the inventory appropriately reflects the GHG emissions and serves the decision-making needs of users
- **Completeness:** Account for all GHG emission sources within the chosen boundaries
- **Consistency:** Use consistent methodologies to allow meaningful comparisons over time
- **Transparency:** Address relevant issues in a factual and coherent manner
- **Accuracy:** Ensure emissions quantification is systematically neither over nor under actual emissions

Appendix B: Abbreviations and Acronyms

- **CH4:** Methane
- **CO2:** Carbon Dioxide
- **CO2e:** Carbon Dioxide Equivalent
- **GHG:** Greenhouse Gas
- **GWP:** Global Warming Potential
- **IPCC:** Intergovernmental Panel on Climate Change
- **N2O:** Nitrous Oxide
- **tCO2e:** Tons of Carbon Dioxide Equivalent

Report Information

- **Report Generated:** November 19, 2025 at 21:27
- **Reporting Standard:** GHG Protocol Corporate Accounting and Reporting Standard
- **Report Version:** 1.0