
Carbon Footprint Management Plan Hanna Instruments - 2023

Carbon Footprint Management Plan	
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Carbon Footprint Management Plan

Hanna Instruments - 2023

At Hanna Instruments, our legacy of making science accessible and practical is the cornerstone of our Carbon Footprint Management (CFM) Plan. Since our inception in 1978, our commitment to innovation and quality has not only propelled us to the forefront of testing equipment manufacturing but also to the responsible stewardship of our environmental impact.

This CFM Plan is a declaration of our dedication to meticulously measure and manage our carbon footprint, reflecting our resolve to mitigate the adverse effects of climate change. It is a comprehensive strategy that aligns with our corporate ethos of precision and reliability, ensuring that our environmental efforts are as accurate and dependable as the testing tools we've been crafting for over four decades.

Contained within this document is our methodical approach to carbon footprint management and monitoring, including our ambitious targets for reducing greenhouse gas (GHG) emissions. It outlines a detailed action plan with clear milestones to achieve these reductions progressively.

Moreover, the CFM Plan scrutinizes the integrity of our carbon management endeavors, examining the methodologies for data collection and calculation, the sources of data, and the processes and activities that contribute significantly to emissions. It also evaluates the assumptions made during these calculations. Through rigorous data quality assessments, we identify and prioritize areas for continuous improvement.

In crafting this plan, we draw upon our global presence in 47 countries and our diverse product range, developed with the utmost attention to detail, to ensure that our environmental initiatives are as robust and effective as our products. Our plan is not just about compliance but about driving sustainable growth and value creation for the future, ensuring that better testing does not come at the expense of our planet.

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Definitions

Scope 1: Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process.

Scope 2: GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

Scope 3: This scope includes data on all indirect emissions from other entities associated with the company, especially in the supply chain. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

Organisation Background

Main Business and Operations

Founded in Padova, Italy, in 1978 by Oscar and Anna Nardo, Hanna Instruments has evolved into a global leader in the development of electro-analytical instrumentation. With a mission to make accurate, cost-effective, and user-friendly testing available to all, Hanna Instruments revolutionized the industry with the introduction of the pHep (pH electronic paper) in the 1980s, democratizing the pH measurement process.

Today, Hanna Instruments is synonymous with innovation, as evidenced by its expansive product line that includes over 3,500 items, ranging from chemical test kits to advanced multiparameter meters. The company's operations span the globe, with state-of-the-art production facilities in the USA, Romania, Italy, and Mauritius, and a presence in 47 countries through 60 offices.

Products and Strategy

Hanna Instruments' product strategy is built on the foundation of in-house design and manufacturing, allowing for exceptional quality control and the flexibility to adapt quickly to market needs. The product range is diverse, catering to industries such as agriculture, environmental monitoring, food and dairy, industrial processes, and quality control laboratories, among others.

The company's commitment to quality is unwavering, with all products designed and manufactured under strict ISO 9001:2015 standards. Each instrument is subject to rigorous quality control tests, ensuring that Hanna's offerings are not just innovative but also reliable.

Approach to Sustainability

Sustainability is not a mere afterthought for Hanna Instruments; it is an integral part of its operational philosophy. The company's industrial science park in Romania is a testament to this commitment, producing all instrumentation in-house and minimizing the carbon footprint associated with outsourcing and transportation.

Hanna's dedication to sustainability is also reflected in its ISO 14001:2015 certification, which underscores its systematic approach to environmental management. By controlling the entire production process, from the initial concept to the final quality check, Hanna ensures that environmental considerations are embedded into every stage of its product lifecycle.

Motivation for Sustainability

Hanna Instruments' motivation for sustainability is twofold: a responsibility towards the planet and a strategic business imperative. The company recognizes that sustainable practices are not only crucial for the environment but also for the long-term viability of the business. By integrating sustainability into its core operations, Hanna is protecting future growth and value creation.

Future Vision

Looking to the future, Hanna Instruments envisions a world where analytical measurements do not come at the expense of the environment. The company is committed to developing solutions that simplify and improve accuracy in testing while being mindful of their environmental impact. This includes exploring new technologies that could set industry benchmarks for eco-friendly instrumentation.

Reasons for Advancing Carbon Footprint Management

- 1. Innovation as a Core Value:** Hanna Instruments has a storied history of pioneering new technologies. By integrating carbon footprint management, the company can continue its legacy of innovation, not just in product development but also in operational excellence. This forward-thinking approach ensures that the company remains at the cutting edge of both technology and sustainability practices.
- 2. Responding to Customer Demand:** Today's consumers and businesses are increasingly environmentally conscious, seeking partners that reflect their values. By advancing carbon footprint management, Hanna Instruments can meet and exceed these expectations, thereby strengthening customer loyalty and attracting a market segment that prioritizes eco-friendly practices.
- 3. Sustainability Reporting:** Regulatory environments and industry standards are shifting towards mandatory sustainability reporting. By proactively managing its carbon footprint, Hanna Instruments ensures compliance with current and future reporting requirements, avoiding potential penalties and reinforcing its reputation as a responsible corporate citizen.
- 4. Competitive Advantage:** A commitment to carbon footprint management can serve as a differentiator in the marketplace. Hanna Instruments can leverage this commitment to stand out among competitors, offering an additional value proposition to its customers.
- 5. Internal Commitments:** Hanna Instruments has a strong internal culture of quality and precision. Carbon footprint management aligns with these internal values, fostering a sense of pride and purpose among employees. It also helps in attracting and retaining talent who want to work for a company that is committed to environmental stewardship.
- 6. Driving Industry Leadership:** By taking a proactive stance on carbon footprint management, Hanna Instruments can position itself not just as a leader in analytical instrumentation but also as a leader in sustainability within the industry. This leadership can inspire others and contribute to broader environmental benefits.

1. Corporate Climate Policy

April 3, 2024

In acknowledgment of the impact our operations have on the environment, Hanna Instruments SRL affirms its dedication to managing and reducing greenhouse gas (GHG) emissions in accordance with the principles outlined in Section 1 of the Greenhouse Gas Protocol (GHG Protocol Standard 2004). Our approach is characterized by the following strategic directives:

- **Commitment to Climate Change Mitigation:** Hanna Instruments SRL pledges to uphold a robust commitment to mitigating climate change, integrating industry best practices into our corporate ethos and operations.
- **Annual GHG Emissions Reduction:** We will actively pursue the reduction of our annual GHG emissions by avoiding superfluous emissions, enhancing energy efficiency, and fostering climate-conscious business practices throughout our entire value chain, thereby refining our corporate and product carbon footprint.
- **Policy Alignment:** Hanna Instruments SRL will ensure that our business policies, including those related to procurement and travel, are in harmony with the objectives articulated in this climate policy.
- **Investment in Emission Reduction:** We will identify and invest in areas where prudent expenditures can lead to substantial reductions in GHG emissions, as detailed within our carbon footprint management plan.
- **GHG Monitoring and Reporting:** Hanna Instruments SRL commits to establishing a rigorous methodology for the annual monitoring and reporting of our GHG emissions. This process will be thorough, consistent, accurate, pertinent, and transparent, adhering to the standards set forth by Preferred by Nature's Carbon Footprint Management Standard (Preferred by Nature 2022).
- **Transparent Communication:** We will maintain open and honest communication regarding our climate policy, reduction goals, action plans, and progress in achieving these targets.
- **GHG Reduction Commitment:** We pledges a 25% cut in emissions over 5 years through efficient logistics, sustainable sourcing, and by switching to the use of renewable energy.
- **Promotion of Climate-Friendly Practices:** Hanna Instruments SRL will actively encourage our business partners and clients to embrace and implement climate-friendly practices in their business operations, production, and consumption habits.

Martino Nardo

2. CFM Overview and Approach

The following outlines the focus of our carbon footprint along with relevant processes and quality management measures related to our plan.

i. Subject of analysis:

This document outlines our strategy for compiling the corporate GHG emissions inventory via the control approach. This method entails accounting for all GHG emissions from operations under our command. We establish control based on operational authority, which empowers us to set and enforce operating policies. By adopting this approach, we concentrate on emissions from areas under our direct influence, ensuring a focused and effective framework for managing and reporting GHG emissions.

ii. Justification of base year:

We choose the year 2022 as the reference year for preparing the GHG inventory. 2022 is the most recent year for which complete accounting data is available. This ensures accuracy in calculations. Also, it provides a recent baseline for tracking future progress and changes in emissions, reflecting the latest operational conditions and environmental impacts. From regulatory and policy relevance, this year aligns with recent changes in environmental regulations and corporate sustainability targets, making it a relevant choice for current and future reporting.

iii. Staff responsibilities:

The preparation of Carbon Footprint Management Plan was treated as a project to improve the company's environmental management system and project management requirements were applied. For this purpose, a team was established for the execution of this project, which included the following roles, with the related responsibilities and competences:

1. **Project Manager:** Oversees the entire inventory process, ensuring that goals, timelines, and standards are met. She needs strong leadership, project management skills, understanding of GHG protocols, and the ability to coordinate across various departments.
2. **Data Collectors:** Gather operational data relevant to emissions, such as energy usage, waste management, raw materials and products cycles, and industrial processes. This role requires attention to detail, proficiency in data collection methods, understanding of operational processes and basic knowledge of emissions factors.
3. **Analysts:** Process and analyze the collected data to calculate GHG emissions, using established methodologies and conversion factors. They must have strong analytical skills, familiarity with GHG calculation methodologies, proficiency in data analysis tools, and an understanding of environmental science.
4. **Quality Assurance Responsible:** Reviews and verifies the accuracy and completeness of the emissions data and calculations. Needs expertise in GHG inventory standards, attention to detail, and skills in data verification and validation.
5. **Reporting Specialist:** Prepares the final GHG inventory report, ensuring it complies with relevant protocols and standards, and communicates findings to stakeholders. Should possess excellent communication skills, knowledge

of GHG reporting standards, and the ability to translate technical data into comprehensible reports for stakeholders.

iv. Staff training

In order to build the above competencies and to achieve its objectives, the team participated in trainings that included webinars and on-the-job training. The topics addressed in these trainings were:

- understanding of GHG Protocols, GHG accounting and reporting standards,
- data collection, management, and analysis specific to GHG emissions,
- methodologies and tools for calculating GHG emissions,
- Quality Assurance and Verification,
- encouragement of ongoing learning to stay updated with evolving standards and technologies

v. Documentation

Hanna Instruments implemented a systematic approach that can effectively log and store CFM documentation, ensuring compliance, transparency, and accessibility for internal stakeholders and regulatory authorities.

The system is made up of the following components:

1. Documentation Server — all CFM documents are stored on a centralized documentation server and utilize a document management system (DMS) for easy organization, version control, and access permissions.
2. File Structure — on the documentation server is created a hierarchical folder structure which categorize documents by type, year, and month. Top-level folders could include categories like "Calculations," "Reports," "Invoices," etc. and sub-folders within each category are organized by year and month. A naming convention is used to easily identify and locate specific calculations and categories.
3. Version Control — version control mechanisms are implemented to track changes and revisions to documents.
4. Access Control — access permissions on the documentation server are set to restrict document viewing, editing, and deletion based on user roles and responsibilities. Only authorized personnel involved in CFM activities have granted access to maintain data integrity and confidentiality.
5. Backup and Disaster Recovery — there are policies and procedures to prevent data loss in case of system failures or unforeseen events

vi. Data collection

In preparing of the Hanna Instruments corporate GHG emissions inventory, we used a variety of measures to collect data, both internally and externally, mentioned in the following table:

No. Crt.	Measures	Description
1	Energy Consumption Records	data on energy usage from internal sources like utility bills
2	Emission Data from Corporate Fleets	information on fuel consumption and mileage from company-owned vehicles
3	Supply Chain Data	industry-specific databases for emissions factors for the production and transportation of purchased goods
4	Logistic and Distribution Data	emissions data related for the storage and transport of own products
5	External Environmental Databases	government or industry-specific databases for emissions factors and regional environmental data
6	Employee Commuting Data	data from suppliers of passenger transport services and surveys to estimate emissions from employee commuting patterns
7	Waste Management Data	information on waste generation and disposal methods, including recycling and landfill data
8	Public Transportation Usage Data	data on the use of public transportation by employees for commuting and business travel
9	Energy Audits	energy audits of facilities to identify sources of emissions and areas for improvement

vii. Calculation tools:

We employ a meticulous approach to calculation, ensuring accuracy and transparency in our emissions assessment. Our process begins with an Excel form provided by the Preferred by Nature Organization. This form serves as a structured framework for data collection and calculation, streamlining the process and facilitating consistency in our assessments.



We rely on active data collected during the company's operations for the specified period, encompassing various aspects such as energy consumption, raw material production and transportation, and waste generation. This data is meticulously gathered from relevant departments and systems within the organization, ensuring comprehensive coverage of our emissions sources.


Our choice of emission factors (EFs) is guided by a commitment to accuracy and relevance. We select EFs from reputable sources that best align with the specifics of our operations and industry standards. These sources are carefully vetted to ensure credibility and transparency, with a detailed listing provided in the calculation form for full disclosure and traceability.

By employing this robust methodology, we uphold the highest standards of integrity and accountability in our carbon footprint assessment. Our approach not only facilitates accurate measurement of emissions but also enables informed decision-making and targeted interventions to drive emissions reductions effectively.

viii. Performance monitoring:

This approach will help in effectively monitoring and improving the performance of our GHG accounting and reporting, ensuring compliance, and achieving sustainable reductions in emissions

No. Crt.	Measures	Description
•  Improving Performance		
1	Benchmarking	We will compare current GHG emissions against industry standards and past performance, and we will identify areas where improvements are most needed.
2	Employee Engagement and Training	Foster a culture of environmental awareness. Train employees on energy-saving practices and the importance of reducing GHG emissions
3	Process Optimization	Analyze current processes for inefficiencies. Implement more energy-efficient methods or technologies to reduce emissions
4	Renewable Energy Sources	Transition to renewable energy sources like solar or wind power where feasible
5	Regular Audits	: Conduct regular environmental audits to identify areas for improvement
•  Tracking Reductions		
6	Emissions Inventory	Maintain a comprehensive inventory of all GHG emissions. This should be updated regularly with data from all sources
7	Key Performance Indicators (KPIs)	Establish KPIs related to GHG emissions, such as energy consumption per unit of production, or tons of CO2 reduced
8	Real-time Monitoring	Implement systems for real-time monitoring of energy consumption and emissions

9	Data Analysis Tools	Use advanced data analysis tools to identify trends and the effectiveness of reduction strategies
<ul style="list-style-type: none">  Managing Non-Conformities 		
10	Internal Audits	Regular internal audits to identify non-conformities before external verification
11	Corrective Action Plans	For any non-conformity identified, develop and implement a corrective action plan. This should include specific steps to remedy the issue, responsible parties, and timelines
12	Documentation	Maintain thorough documentation of all non-conformities and corrective actions for transparency and accountability
13	Training and Awareness	Ensure all staff are aware of compliance standards and their roles in maintaining them
14	External Verification Preparation	Prepare for external verifications by reviewing all documentation and ensuring all areas of non-conformity have been addressed

ix. Offsetting procedures

While offsetting through the purchase of carbon credits is a commonly utilized method to mitigate greenhouse gas emissions, Hanna Instruments has chosen not to pursue this strategy in the coming period.

Firstly, we recognize that offsetting through carbon credits may not directly address the root causes of emissions within our operations. It offers a financial mechanism to compensate for emissions elsewhere, which may not align with our goal of reducing emissions at the source.

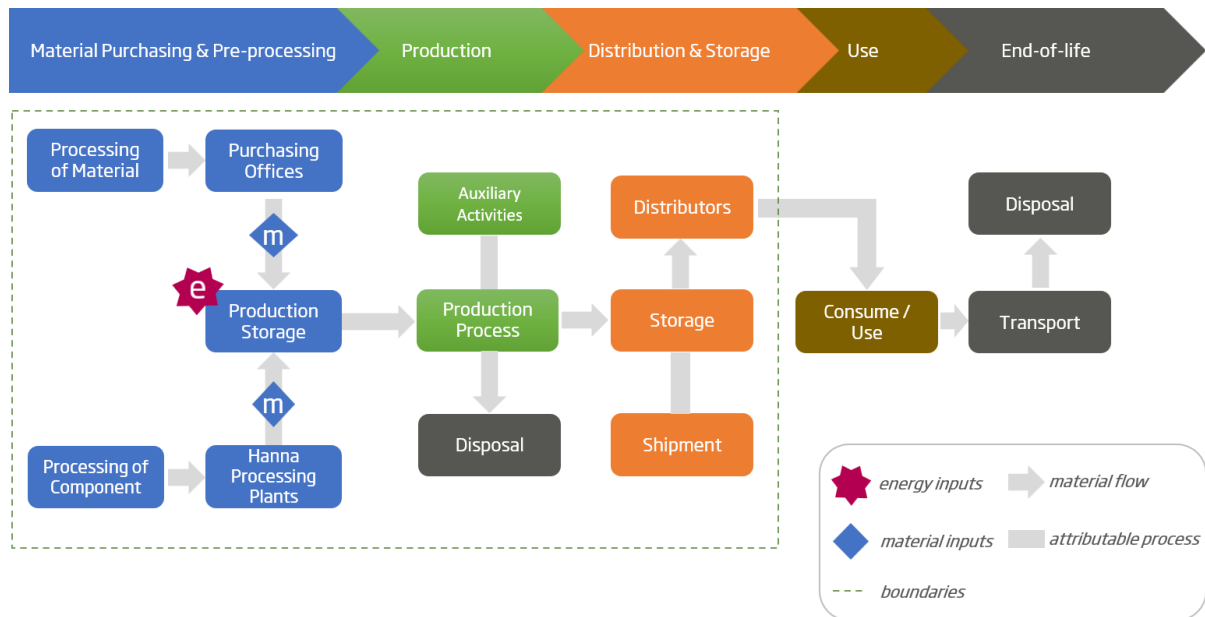
Secondly, as part of our commitment to environmental stewardship, we prioritize proactive measures to reduce emissions internally. By focusing on optimizing processes, enhancing energy efficiency, and adopting sustainable practices across our operations, we aim to minimize our carbon footprint in a tangible and sustainable manner.

Moreover, while carbon offset projects can contribute to emission reductions globally, the efficacy and transparency of such projects vary. We are committed to ensuring that any emission reduction efforts undertaken by Hanna Instruments are transparent, verifiable, and aligned with our sustainability objectives.

We will continue to invest resources and efforts into internal emission reduction initiatives, striving to achieve our targets through meaningful actions that drive lasting environmental impact. This approach aligns with our values of accountability, innovation, and sustainability, ensuring that our actions are consistent with our broader environmental and social commitments.

3. Organisation’s Process Map and Scope List

3.1. Process Map



3.2. Scope List

Scope 1	Description
<p>1.1 Emissions from fuel combustion in owned or controlled boilers, furnaces, vehicles – e.g., transport of products or employees in company owned cars</p>	<ul style="list-style-type: none"> • The company uses LPG for heating the buildings with 27 gas condensing boilers with powers ranging from 80 to 150 KW are used. • To ensure uninterrupted electricity supply, the company have been installed 6 diesel generators to provide backup in case of power outages. • The company has a diesel tank that supplies fuel to forklifts, construction equipment, and its own vehicles. • The company has 7 cars for key positions, which are fueled by diesel and gasoline.
Scope 2	Description
<p>2.1 Emissions from the generation of purchased electricity consumed by the company in production, office, and storage facilities</p>	<p>The electric power consumed by the production halls, warehouses and administrative buildings is provided by the state company SC Electrica Furnizare SA</p>
Scope 3 (Upstream)	Description

3.1 Land use change (unless included in life cycle emission factors for purchased products)	These data were not included due to lack of data
3.2 Capital goods (extraction, production, and transportation of capital goods)	Not included due to the lack of data and the very small proportion in the total emissions
3.3 Extraction, production, transportation and storage of goods and services purchased or acquired	<p>The company sources its supplies through supply offices located in the following cities: Singapore, Boston - USA, Padova - Italy and Mauritius.</p> <p>Goods transported by sea are brought to the port of Antwerp - Belgium, and goods arriving by air are directed to Vienna airport. From these locations, cargo is trucked to the company's headquarters in Nusfalau, Romania.</p>

Scope 3 (Reporting Company)	Description
3.4 Business travel: business-related activities during the reporting year (by air, employee-owned vehicle, public transport, and taxi)	Evidence based on travel orders and invoices
3.5 Waste generated in operations and offices	The waste generated from the production activity includes: cardboard, plastic, glass, metal, electronic components and various chemicals and packaging. All waste is collected separately and handed over to authorized companies for recycling, recovery or disposal. The company's focus is to reduce the amount of waste going to landfill.
3.6 Upstream product transportation by third party	Calculated based on the weight (t) of the delivered material and the distance (km) from the supplier
3.7 Transportation of employees between their homes and their worksites	Evidence of invoices from third party transport companies, based on employ number and transportation distance (km)
3.8 Emissions arising from hotel accommodation due to business travel	These data were not included due to lack of data
3.9 Downstream transportation and distribution of products sold by the reporting company - including outbound courier deliveries of packages and retail and storage (in vehicles and facilities not owned or controlled by the reporting company)	When calculating the downstream transport for the exported goods, we used the data from the couriers' invoices (quantity and country of destination). We added the transport by road from Nusfalau to the port and airport of departure. For goods sold in Europe, we used the intrastat declarations.
3.10 Fuel- and energy related lifecycle emissions (not included in scope 1 or scope 2) e.g. Well-to-Tank (WTT)	These emissions were included in the emission factors used for calculation.

Scope 3 (Downstream)	Description
3.11 Processing of sold products (processing of intermediate products sold in the reporting year by downstream companies, e.g., manufacturers)	The products sold by Hanna Instruments are final products
3.12 End of life treatment of sold products (waste disposal and treatment of products sold by the reporting company.	Not included due to the lack of data
3.13 Downstream leased assets (operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year)	No assets leased to other entities
3.14 Outsourced activities and Franchises (operation of franchises in the reporting year, not included in Scope 1 and Scope 2 – reported by franchisor)	We do not have outsourced or franchised activities
3.15 Use of sold products (end use of goods sold by the reporting company in the reporting year)	Not relevant, very low emissions compared to the total

4. Carbon Footprint Results

4.1. Base year carbon footprint and boundaries

Corporate Carbon Footprint

To prepare the GHG emissions inventory, we took into account various aspects of the company's operations, supply chain, and activities.

1. Overview of Operations and Supply Chain

Hanna Instruments operates globally with a presence in 47 countries through 60 offices. The company has state-of-the-art production facilities in the USA, Romania, Italy, and Mauritius. The primary production facility for electronic devices and chemical mixtures is located in Nusfalau, Romania. Approximately 1000 employees work in Hanna Instruments' Romanian production area and sales offices.

Raw materials are procured from suppliers worldwide, with procurement offices in the USA, Singapore, and Italy managing the supply chain. Goods are transported by sea, road, or air from procurement offices to the raw material warehouse at the production place. Finished products are distributed globally, with transportation methods including road, sea, and air transport.

The types of energy consumed throughout the company's operations include: electricity, liquefied petroleum gas and diesel, used for manufacturing processes, transportation, and office operations.

2. Product Use and Disposal

Understanding how customers use and dispose of Hanna Instruments' products provide insight into potential emissions associated with product use and end-of-life disposal. By considering the product lifespan, energy consumption during use, and proper disposal methods, users can minimize the environmental footprint associated with Hanna Instruments' meters and contribute to sustainable practices in instrumentation usage and disposal.

Product Lifespan

A electronic equipment made by Hanna Instruments typically has a lifespan ranging from several years to a decade or more, depending on usage frequency and maintenance. Hanna Instruments' meters are known for their durability and reliability, often lasting through extensive field use in various environmental conditions. Regular calibration and maintenance can extend the lifespan of a meter, ensuring accurate readings over time.

Energy Consumption During Use

Portable meters from Hanna Instruments are battery-operated for on-the-go measurements. The energy consumption during use primarily depends on the type of batteries used (e.g., alkaline, rechargeable), the frequency and duration of usage, and additional features such as backlighting and data logging. Hanna Instruments' meters are designed with energy-efficient components and optimized power management systems to maximize battery life. Users are encouraged to follow best practices for battery usage, such as turning off the meter when not in use and replacing batteries with rechargeable options when feasible to reduce environmental impact.

Disposal Methods

At the end of its lifespan, proper disposal of the electronic equipments is essential to minimize environmental impact. Hanna Instruments recommends recycling electronic components whenever possible to recover valuable materials and reduce waste.

We recommend users to adhere to local regulations regarding electronic waste (e-waste) disposal, at designated recycling centers or collection events. Batteries need to be removed from the meters before disposal and recycled separately through appropriate battery recycling programs to prevent chemical contamination and promote resource recovery.

Some components of the meters, such as the housing and electrodes, are made of recyclable materials (ABS, glass, HPDE etc.) and can be separated for recycling, where facilities exist.

3. Boundary Definition

The carbon footprint boundary encompasses all direct emissions (Scope 1) and significant indirect emissions (Scope 2) from owned or controlled sources, including production facilities and company vehicles.

The company does not buy heat from external suppliers, the heating of the spaces is carried out by thermal power plants with powers between 24 kW and 160 kW, fueled with LPG.

Indirect emissions from purchased electricity (Scope 2) are included in the company's overall emissions profile.

Scope 3 emissions, such as those from purchased goods, transportation, and employee commuting, are also included in the company's emission inventory. When calculating the emissions generated by the transport of goods, we took into account the distances between Nusfalau and the Hanna's supply and sales offices.

4. Reporting Approach:

The Carbon Footprint Management Plan adheres to the GHG Protocol Corporate Accounting and Reporting Standard, utilizing standardized approaches and principles for calculating and reporting emissions. Emissions data are collected systematically, employing appropriate measurement methods and emission factors relevant to each emission source.

The base year for our CFM plan, calculated in 2022 amounts to:

Total (Absolute) GHG emissions: 4519 tCO₂e
(with 3% buffer for Scope 3)

Intensity (Ratio) terms: 82.770 tCO₂e per \$1MM of annual turnover

Relevant emissions: CO₂, N₂O, CH₄

Emissions by Scope:

Scope 1	Scope 2	Scope 3 (with buffer)
548.100 tCO ₂ e	905.201 tCO ₂ e	3066.065 tCO ₂ e (with 3 % buffer)

Product Carbon Footprint

In this iteration of our Carbon Footprint Management (CFM) process, we are focusing solely on calculating the carbon footprint (CF) at the corporate level rather than for individual products. By consolidating our efforts to assess emissions at the organizational level, we can establish a comprehensive understanding of our overall environmental impact and prioritize mitigation strategies accordingly. This approach allows us to streamline data collection and analysis processes, enabling more efficient resource allocation and decision-making.

Moving forward, as part of our continuous improvement efforts, we plan to expand our CFM framework to include the calculation of carbon footprints for individual

products. This next phase will involve gathering product-specific data and implementing methodologies to assess the environmental impact associated with each product throughout its lifecycle.

By incorporating product-level carbon footprint assessments into our CFM strategy, we aim to further enhance our sustainability initiatives and provide valuable insights for both internal management and external stakeholders.

4.2. Carbon Footprint emissions and removals over time

We currently have data for the initial year of calculation. As a result, we are unable to present a complete analysis of performance trends over subsequent years.

We are actively working to gather the necessary data for subsequent years to complete this chapter of the CFM document. Once we have obtained the relevant information, we will promptly update the document to provide a thorough assessment of our performance in reducing GHG emissions over time.

We will provide graphs, illustrations, and infographics to demonstrate GHG emissions reductions in both absolute and intensity ratio terms.

Measure	2022 Base year	2023	2024	2025
Absolute	4519 tCO ₂ e	4629 tCO ₂ e		
% difference		+2.43%		
Intensity (tCO ₂ e per \$1MM of annual turnover)	82.770 tCO ₂ e/\$1MM	78.215 tCO ₂ e/\$1MM		
% difference		-5.50%		

GHG Emissions Reductions and Removals

Removal Activity	Base year (2022)	2023	2024	2025
Scope 1	548.10 tCO ₂ e	724.41 tCO ₂ e		
Scope 2	905.20 tCO ₂ e	1102.96 tCO ₂ e		
Scope 3	3066.07 tCO ₂ e	2719.73 tCO ₂ e		

5. GHG emissions reductions

5.1. Reduction targets

Hanna Instruments SRL is committed to lowering our climate impact by setting ambitious emissions reduction targets. These targets represent an important tool for driving GHG emissions reductions across the organisation and its value chain.

The Hanna Instruments's corporate GHG target is:

Reduce GHGs by 25 percent from 2022 levels by 2030

Description	Target	Year	Scope / LC stage	Source
Absolute	30%	2027	Scopes 1, 2	Standard
Intensity Ratio (kgCO _{2e} per output tone)	1%	2024	All scopes	Internal

Description	Target	Year	Scope / LC stage	Source
Absolute	50%	2027	Scope 2 (purchased electricity)	Internal (transition to renewable energy)
Absolute	20%	2027	Scopes 1 (boiler)	Internal

5.2. Reduction plans

Hanna Instruments SRL intends to make real and committed efforts to lower its GHG emissions across its business activities, through the following actions:

1. Investing in Solar Power Projects (Scope 2):

- Implementing solar power projects involves installing solar panels on the roofs or grounds of Hanna Instruments facilities to generate renewable electricity.
- Scope 2 emissions reduction is achieved by directly replacing grid electricity with clean solar energy, thus reducing emissions associated with purchased electricity.

2. Purchase of Renewable Energy (Scope 2):

- Hanna Instruments can procure energy from other supplier in the market with a better mix of hidro, wind and solar. This action directly reduces Scope 2 emissions by substituting conventional grid electricity with renewable sources.

3. Equipping Buildings with Heat Pumps (Scope 1 and 2):

- Installing heat pumps in new or existing buildings helps to improve energy efficiency and reduce reliance on fossil fuels for heating and cooling.

- Scope 1 emissions are reduced by replacing direct combustion of fossil fuels for heating with the use of electricity to power heat pumps.
 - Scope 2 emissions may also decrease if the electricity used by heat pumps is sourced from renewable or low-carbon sources.
4. **Replacing Diesel Forklifts with Electric Ones (Scope 1):**
- Transitioning from diesel to electric forklifts eliminates emissions from onsite combustion of diesel fuel. This action directly reduces Scope 1 emissions associated with mobile combustion sources, contributing to overall emissions reduction.
5. **Modernizing Boilers with Efficient Condensing Plants (Scope 1):**
- Upgrading boilers older than 15 years with more efficient condensing plants reduces fuel consumption and associated emissions from onsite combustion.
 - This initiative targets Scope 1 emissions by improving the efficiency of heating systems and decreasing the amount of LPG consumed.
6. **Selective Collection of Household Waste (Scope 3):**
- Implementing a selective collection system for household waste at Hanna Instruments' facilities aims to minimize the amount of waste sent to landfills.
 - While waste management primarily falls under Scope 3 emissions, reducing landfill waste indirectly lowers emissions by mitigating methane emissions from decomposing organic matter in landfills.

<i>Description</i>	<i>Status</i>	<i>Timeframe (implementation)</i>	<i>Reduction amount</i>
Investing in Solar Power Projects	Investment €1 mil. and implementation underway	2024-2027	10% tCO ₂ e/year for scope 2
Purchase of Renewable Energy	Research stage	2024-2025	
Equipping New Buildings with Heat Pumps	Investment €1 mil. and implementation underway.	2024-2027	5% tCO ₂ e/year for scope 1
Modernizing Boilers with Efficient Condensing Plants	Investment €25 000 and implementation underway	2024-2027	
Replacing Diesel Forklifts with Electric Ones	Investment €100 000 and implementation underway	2024-2028	
Selective Collection of Household Waste	Education and training of staff underway	2024-2026	10% tCO ₂ e per year (scope 3 – waste operation)

6. Offset Projects and Carbon Credits

6.1. Carbon Offset targets

Hanna Instruments have no plans to compensate our remaining GHG emission in the coming period.

We will continue to invest resources and efforts into internal emission reduction initiatives, striving to achieve our targets through meaningful actions that drive lasting environmental impact. This approach aligns with our values of accountability, innovation, and sustainability, ensuring that our actions are consistent with our broader environmental and social commitments

6.2. Carbon Neutrality

At present, Hanna Instruments does not have immediate plans to achieve carbon neutrality. Instead, we are focusing on implementing measures to reduce our carbon footprint (CF) based on the results of our ongoing efforts. As we continue to monitor and assess the effectiveness of these reduction initiatives, we will use the insights gained to inform our future sustainability strategies.

Our commitment lies in steadily decreasing our CF through targeted actions and investments in sustainable practices across our operations. Once we have achieved significant progress in reducing our CF and have a clearer understanding of our emissions profile, we will consider setting a trajectory towards carbon neutrality in subsequent periods.

7. Data Quality

7.1. Data Quality Assessment

Hanna Instruments is committed to ensuring the integrity and accuracy of the data utilized in its carbon footprint management efforts. To achieve this, the company diligently seeks to gather and employ actual and precise data to the fullest extent feasible. This entails the identification and utilization of primary data sources for all operational activities falling under our control, with particular emphasis on Scope 1 and Scope 2 emissions. Primary data sources encompass various metrics such as actual fuel consumption in liters, energy consumption in kWh, material usage in kilograms, distances traveled, as well as GHG emissions determined through direct monitoring, metering, or stoichiometry.

Moreover, Hanna Instruments endeavors to obtain primary data for Scope 3 emissions whenever feasible, leveraging actual data computed or provided by suppliers pertaining to specific sites, activities, or processes. In instances where primary data acquisition is unattainable, the organization resorts to credible secondary data sources. These sources may include but are not limited to life cycle databases, analogous processes within the organization, industry benchmarks, financial data, scientific research, or governmental publications.

Furthermore, in the absence of real emission data obtained through direct measurement or supplier-provided information, Hanna Instruments relies on similar secondary sources to gather emission factors. This comprehensive approach

ensures that the company's carbon footprint management plan is founded on robust, accurate, and reliable data, facilitating informed decision-making and effective emission reduction strategies.

The following table provides an overview of data quality issues that may/could arise due our data collection and measuring methods. The table represents potential data quality issues for the current year (2022) and has been established based on the results of our data quality assessment process (see second table below).

Category or Process	Source	Quality issue	Results Δ
Scope 1 (onsite heat)	Emission factor source (DEFRA 2022)	Emission factors vary depending on the type, power and age of the boilers	+/- 10% difference of emissions
Scope 3 (transportation)	Calculations	Distances between port/airport and Hanna Instruments's offices are not taken in account	+ 1% difference of transport emissions

The following table demonstrates the results of our data quality assessment based on the factors and data quality indicators as described in Section 3 of the Preferred by Nature Standard (Preferred by Nature 2022).

Considerations	Completeness	Age	Fit	Geography	Reliability
Calculation methods	4	5	N/A	N/A	5
Emission Factors	3	3	3	2	4
Primary data	3	4	5	2	3
Secondary Data	3	2	2	3	3
Sources	3	3	3	3	4
Scope 2 Data	2	3	N/A	4	3
Significant emissions	4	N/A	N/A	5	3
Allocation methods	3	5	4	N/A	2
Use / End of life	1	N/A	N/A	N/A	2

Note:

- *Completeness: Reflects the extent to which all relevant data points are included in the assessment. Scale: 1 (Incomplete) to 5 (Complete).*
- *Age: Considers the recency of the data. Scale: 1 (Outdated) to 5 (Current).*
- *Fit: Indicates the degree to which the data accurately represents the organization's technological processes. Scale: 1 (Poor fit) to 5 (Excellent fit).*
- *Geography: Assesses how well the data reflects the geographic context of the organization's operations. Scale: 1 (Poor representation) to 5 (Excellent representation).*

- *Reliability: Measures the overall trustworthiness and credibility of the data. Scale: 1 (Low reliability) to 5 (High reliability).*

7.2. Data Quality Improvement Plan

Hanna Instruments is committed to improve its data collection methods and sources to reflect emission totals and reductions that are accurate and relevant. Based on this, the organisation is taking ongoing measures to enhance the quality of data by incorporating industry best practices, using the most recent resources, and prioritising the use of primary data. The following demonstrates our actions to reduce data uncertainty and quality issues in the future.

Area of improvement	Action Plan	Effects on results	Status
Standardization of Data Collection Procedures	Elaborate standard operating procedures (SOP) for data collection across all departments	Eliminate variation in results	Underway
Scope 2 emission factors	Use data from electricity provider	Prioritize the use of primary data	Underway
Scope 3 – top 10 purchased materials by emissions	Contact our suppliers to provide us with the carbon footprint of the supplied materials (if they have) and thereby refine the calculation	Unknown	Scheduled
Enhanced Employee Training and Awareness	Conduct regular training sessions for employees involved in data collection and reporting to ensure they understand the importance of accurate data and are familiar with data collection procedures	Unknown	Scheduled

8. Climate Communications, claims, and labels

8.1. Public reporting

By transparently sharing information about the organization's carbon footprint and mitigation efforts, Hanna Instruments demonstrates its commitment to environmental responsibility and sustainability. Public reporting can take various forms, including posting detailed information on the company's website,

incorporating carbon footprint data into advertising campaigns or marketing materials, showcasing sustainability initiatives at trade fairs or industry events, and including carbon footprint information on product packaging or labels.

Hanna Instruments communicates the results of its carbon footprint as well as its progress on GHG emissions reductions on an annual basis. The information is available in the following documents.

Report Description	Name and Date	Content / Purpose	Link
Carbon Management Plan	CFM-2023 / 09.02.2024	<ul style="list-style-type: none"> • guiding strategic decision-making, • driving emission reduction efforts, • managing risks, • enhancing stakeholder engagement, • demonstrating environmental leadership in the context of sustainability and climate action 	[Insert link]

8.2. Claims and Labels

Hanna Instruments SRL uses CFM claims and labels to demonstrate our climate efforts to stakeholders. This document serve as supporting evidence to stakeholders wishing to validate the appropriateness of our claims and label use. In particular, we validate that the information supporting our claims and labels are clearly accessible, do not misrepresent any emissions or results, and appropriately identify the parts of the business or product under investigation; carbon footprint results as well as reductions and offsets achieved; date of verification and approvals.

The following demonstrates an overview of our verification scope(s) and related claims and labels.

Date of verification approval:

Date of Label and/or claim use approval:

	CFM Label	CFM claim	Evidence
Corporate			
Reducing CO ₂	[Insert label here if applicable]	[Include claim here or refer to link]	[Insert link]

9. References

- DEFRA. 2022. *Guidelines for the Measurement and Reporting of Emissions by direct participants in the UK Emissions Trading Scheme*,. London: UK Department for Environment, Food and Rural Affairs.
- GHG Protocol Standard. 2004. *The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard*. Washington: WRI & WBCSD.
- Preferred by Nature. 2022. *Carbon Footprint Management Standard, version 2.0, September 2022*.