ESG Workshop #3: GHG Emissions
Tools and Training for High Performance, Resiliency and Value Creation

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August 10, 2023
Welcome & Introductions

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Casella Waste Systems

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Senior VP Sustainability, WSP Contractor to U.S EPA

GHG Emissions Panel Presenters
Quiz: Which of these is NOT a greenhouse gas?
Poll

Is your company tracking emissions or environmental impact today?
• Introductions, Background & Context

• What are Greenhouse Gases (GHG) and why should businesses calculate and report them?

• GHG accounting & reporting
  ✓ Scopes: Direct, Electricity/Indirect and Other Indirect Emissions
  ✓ Tracking and Taking Inventory of Emissions
  ✓ Setting a Base Year
  ✓ Absolute vs Intensity Reductions
  ✓ Offsets and Credits
  ✓ Company growth, acquisitions, divestitures

• Calculating Emissions
  • U.S. EPA's Emissions Calculator
  • Sample MRF Emissions Test-drive
  • Resources

• Wrap up and preview for September
The ESG initiative is ISRI’s response to a changing world affecting all types and sizes of organizations and companies.

The initiative is being offered to members to help maneuver through the maze of sustainability issues, focusing on creating opportunities to drive business value by shaping resilient and profitable companies for years to come.
• **The Purpose of the Toolkit** - To provide support for ESG strategy development, reporting education, and tools for ISRI’s members

• **The Process** - Chapter by chapter breakdown by topic through monthly interactive workshops

• **Timeline** - A year-long cadence to develop the program to allow time to absorb information

• **Ongoing Support** - Information will continue to be available and updated online for ISRI member reference and use. Staff will be available to provide support, as well.

ISRI will provide information and tools to support ESG strategy development, goals, programs, and reporting.
<table>
<thead>
<tr>
<th>Month (2023)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td><strong>Overview, Materiality and Governance.</strong> These provide an important overlay for ESG strategy. What do stakeholders think is important, or material, about your company. The role of data, policies and guidance associated with good governance play an important role in the ESG strategy dialogue.</td>
</tr>
<tr>
<td>July</td>
<td><strong>Strategy, Goals &amp; Community</strong> Descriptions and supporting documents to help develop key topics supporting ESG. Understanding the “S” of Social in ESG.</td>
</tr>
<tr>
<td>August</td>
<td><strong>GHG Emissions and Carbon Footprint:</strong> A look at GHG emissions, and an introduction to Scopes 1, 2 and 3 emissions.</td>
</tr>
<tr>
<td>September*</td>
<td><strong>Value Creation &amp; The Whole Works Mapping Tool</strong> <em>New Schedule!</em></td>
</tr>
<tr>
<td>October*</td>
<td><strong>Understanding Scopes 3 &amp; 4:</strong> What are they, and how are they counted? <em>New Schedule! Note addition of Scope 3</em></td>
</tr>
<tr>
<td>November</td>
<td>Reporting Frameworks</td>
</tr>
<tr>
<td>December</td>
<td><strong>Looking Ahead to 2024:</strong> A review of the toolkit. Taking time to look ahead to future trends and program needs.</td>
</tr>
</tbody>
</table>
Topics Covered Previously:

- **Workshop #1:**
  - ESG Overview
  - Materiality & Governance

- **Workshop #2:**
  - **ESG Goals & Strategy** - Building on Workshop #1, we discussed developing ESG Goals & Strategies.
  - **The “S”/Social in ESG** - including employees, community, Environmental Justice and Human Rights.
Overview

- No laws requiring ESG reporting
- Reporting on Sustainability and ESG is continually evolving.
- ESG” was coined by the finance industry
- Investors and other stakeholders expect publicly owned companies to report on key ESG topics.

Materiality

- Materiality is determining which ESG impacts (or issues) matter to an organization’s stakeholders.
- Materiality can’t be determined by a company on its own. Companies must enlist stakeholder input.
- A Materiality Assessment prioritizes issues and links the business of the company to its significant ESG impacts

Governance - The “G” of ESG

- Good governance is the foundation for a company’s health.
- Includes corporate structure, financial reporting, policies, stakeholder engagement, compliance and strategy.
- Putting policies in place is critical, as well as annual reporting – and progress towards reported ESG goals.
1. Conduct a materiality assessment
2. Establish your baseline
3. Set ESG Goals
4. Analyze Performance Gaps and revise goals as necessary

Goals + Strategy for Each Goal + Tactics + Reporting

= ESG Strategic Planning
The “S” in ESG is more than just doing good for your surroundings. It includes all the topics connected to how a company relates to people within and outside its walls. It examines the company’s relationships with the other businesses and communities, as well as how the companies treat their employees.

During Workshop #2, we covered:

- Employee Relations
- Community Relations
- Environmental Justice
- Human Rights

The financial world defines the “S/Social” in ESG as how a company manages its relationships with its workforce, the societies in which it operates, and the political environment.

Companies are being held accountable for all aspects of their business: Corporate governance, policies, goals, transparent reporting and community relations.
The “E” in ESG considers how a company performs as a steward of the natural or physical environment. It takes into account a company’s utilization of natural resources and the effect of its operations on the environment, both in its direct operations and across its supply chains.
The “E” in Environment is about more than GHG emissions. Other environmental impacts are important and are interconnected:

- **Water:** Including water use, management, and stormwater management.
- **Air:** Beyond the listed GHG emissions, including Particulate Matter, (NOx) and (SOx), etc.
- **Soil health:** The impact of soil health on biodiversity is a growing area of focus.
- **Noise:** For our business, this can be an important environmental and health issue.

These impacts are touched by our local operations and most reporting inventories about them.
Primary Sources used for GHG reporting and calculation are:

• **The Greenhouse Gas Protocol** - Provides background, definitions, boundaries, and standards

• **U.S. EPA GHG emission calculator** - Online tool for simple calculation of emissions.
What Are Greenhouse Gases?

Gases that trap heat in the atmosphere are called greenhouse gases.

• **Carbon dioxide (CO₂):** CO₂ comes from burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. It also is result of chemical reactions, such as cement production.

• **Methane (CH₄):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also come from livestock and other agricultural practices, and the decay of organic waste in municipal solid waste landfills.

• **Nitrous oxide (N₂O):** Nitrous oxide is emitted during agricultural, land use, industrial activities; and the combustion of fossil fuels and waste.

• **Four Synthetic, Fluorinated gases:**
  - Hydrofluorocarbons (HFCs)
  - Perfluorocarbons (PFCs)
  - Sulfur hexafluoride (SF₆)
  - Nitrogen trifluoride (NF₃)

These are emitted from a variety of household, commercial, and industrial applications and processes.
Why should your company inventory GHG emissions?

A well-designed and maintained corporate GHG inventory can serve several business goals, including:

- Managing GHG risks and identifying reduction opportunities
- Public reporting and participation in voluntary GHG programs
- Participating in mandatory reporting programs
- Participating in GHG markets
- Recognition for early voluntary action.

What gets measured gets managed.

Accounting for emissions have help identify the most effective reduction opportunities. This can drive increased materials and energy efficiency, as well as the development of new products and services for customers and suppliers.
GHG Protocol is the Business Standard

Reporting - Common practice in Leading Companies

GHGP adopted by 60%+ of Fortune 500 companies
Scopes of Emissions
Three categories of Emissions are used for accounting and reporting.

- **Scopes 1 and 2** are carefully defined in this standard to ensure that two or more companies will not account for emissions in the same scope.

- **Scope 3** emissions are indirect emissions that are part of a company’s supply chain. There is increasing attention on Scope 3 Emissions. We anticipate further discussions on these emissions at a later date.

Because reporting companies are expected to separately account for and report on scopes 1 and 2 at a minimum, we will focus on these two today.
Scope 1 emissions are a Company’s direct greenhouse gas emissions
Direct greenhouse gas emissions occur from sources that are owned or controlled by the company.

Examples:
- Emissions from combustion in owned or controlled boilers and furnaces
- Emission from vehicles
- Emissions from chemical production in owned or controlled process equipment.

Note: Direct CO2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately.
Greenhouse gas emissions not covered by the Kyoto Protocol (e.g. CFCs, NOx, etc.) shall not be included in scope 1, but may be reported separately.
Scope 2: Indirect Electricity Emissions

Scope 2 are emissions from the generation of purchased electricity that is consumed by a company in its own equipment or in the operations that it controls.
Scope 3: Other Indirect Emissions

Scope 3 emissions are indirect supply chain emissions (other than electricity) that are the consequence of the activities of the company but occur from sources not owned or controlled by the company.

Examples:
- Extraction and production of purchased materials;
- Transportation of purchased fuels; and
- Use of sold products and services.

Example: DHL Nordic Express: Accounting for outsourced transportation services
DHL provides transport and worldwide express package and document deliveries. While accounting for their emissions, they discover that 98% of their emission are from 3rd party transportation partners. They began working with these partners to account for their emissions, and now use this information to evaluate and reduce their emissions. By including Scope 3 and promoting reduction throughout their value chain they have been able to reduce their emissions footprint.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Emissions (CO2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>7,265 (2.2%)</td>
</tr>
<tr>
<td>Scope 2</td>
<td>52 (0.015%)</td>
</tr>
<tr>
<td>Scope 3</td>
<td>327,634 (97.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>334,951</td>
</tr>
</tbody>
</table>

We are part of our customers’ Scope 3 emissions
Note on Scope 3 Emissions

Scope 3: In the past, estimating Scope 3 emissions has been sufficient. GHG Protocol Guidance did not require reporting or goal setting on Scope 3 emissions if they were less than 40% of a company’s overall emissions inventory.

That is changing. Scope 3 will be required reporting by most reporting bodies in future years.

- We are part of other companies, and our customers have Scope 3 emission. This is why we receive requests from our customers.
- Makes sense to look at it. Your Scope 3 may make up over 40% of your emissions. You probably have 1-2 major supplier that make up most of your Scope 3 emissions, such as subcontracted transportation to end markets.
- U.S. EPA’s Scope 3 Guidance is an excellent resource: Scope 3 Inventory Guidance | US EPA

Amazon’s Scope 3 Emissions
Amazon recently released an 84-page report highlighting their commitment to identifying and reporting on their Scope 3 emissions. They will then work with their suppliers to reduce them.

Scope 3 reporting is not required by part of most major reporting now. And due to its complexity, we are not focusing on it today. However, we will spend more time on Scope 3 emissions during our October Workshop.
In some cases, GHG emission reduction opportunities lie beyond a company’s scope 1, scope 2, and scope 3 inventories.

For example, some companies may track not only the emissions that arise from the use of their products, but also the avoided emissions in society that result from the use of their products and solutions compared to alternative products and solutions. These are sometimes referred to as Scope 4 Emissions.

Avoided emissions may also arise when accounting for the emissions impacts of using recycled rather than virgin materials, or from activities in other scope 3 categories.

Accounting for avoided emissions that occur outside of a company’s scope 1, scope 2, and scope 3 inventories requires a project accounting methodology.

Estimates of avoided emissions are reported separately from a company’s scope 1, scope 2, and scope 3 emissions. They are not included or deducted from the emissions inventory.
Company A provides recycling collection and sorting services. Through their GHG emissions inventory process, the company identified the following primary emissions:

- **Scope 1**
  - Collection truck fuel
  - On-site equipment fuel

- **Scope 2**
  - Electricity purchased from the regional power company

- **Scope 3**
  - 3rd party transportation fleet to end markets/port
  - Purchased goods (trucks, parts, uniforms, office supplies)
  - Travel, commuting, waste disposal

**Avoided Emissions (Scope 4):** Reported separately as part of this company’s Sustainability Report

- **Company A’s emission inventory includes emissions only.** It does not include the environmental benefits associated with the tons they recycle.
- **Avoided Emissions.** The benefits of recycling are called Avoided Emissions since they reduce emissions outside of the boundary of this company. Other companies in the supply chain will report the benefits of recycling as part of their emission inventory.
- **If Recycling Company A incorporated these benefits, this would result in double counting of emissions benefits.**
What questions do you have about Scopes of Emissions?
Taking Inventory & Tracking Emissions

The Paris Climate Accord requires a reduction of emissions sufficient to keep global warming below 1.5 degree Celsius. Measuring emissions plays a key role in that effort.
The GHG Inventory Development Process

Getting Started: Scope & Plan Inventory
- Review GHG accounting standards and methods for organizational reporting
- Determine organizational and operational boundaries
- Choose a Base Year
- Consider 3rd party verification

Collect Data: Collect & Quantify Emissions
- Identify data requirements
- Compile and review facility data (e.g., electricity, natural gas)
- Estimate missing data to fill gaps
- Calculate emissions

Develop a Plan: Develop an ESG Inventory Management Plan
- Develop data collection procedures and tools.
- Document process/guidance
- Formalize procedures

Set a Target: Track and Report Progress
- Finalize data
- Complete 3rd party verification
- Report data
- Prepare to set a publicly reported GHG target and track progress

August 2023
1. Establish an Inventory Quality Team

2. Develop a Quality Management Plan

3. Perform Generic Quality Checks

4. Perform Source-Specific Quality Checks

5. Review Final Inventory Estimates & Reports

6. Institutionalize Formal Feedback Loops

7. Report, Document, Archive

INVENTORY QUALITY MANAGEMENT SYSTEMS

DATA

METHODS

SYSTEMS

DOCUMENTATION

FEEDBACK
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Provide link or informational response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>Facility Type</td>
<td>List each type facility, and the number of each one</td>
</tr>
<tr>
<td>Equipment</td>
<td>On road</td>
<td>Number of on road fleet (front-load, side-load, rear load, roll off), and the number and age of each</td>
</tr>
<tr>
<td>Fuel</td>
<td>Type of fuel (diesel, biodiesel, natural gas, propane)</td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>Source description and Grid (who is it purchased from)</td>
<td></td>
</tr>
</tbody>
</table>

**Making it Easy: ISRI Data Collection Tables**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Sample Responses below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility</td>
<td>Facility Type</td>
<td>Recycling Facility (MRF)</td>
</tr>
<tr>
<td>Equipment</td>
<td>By Type, Age, Fuel Type</td>
<td>Example: 1 2005 Roll off truck/ diesel fuel</td>
</tr>
<tr>
<td>Fuel</td>
<td>List each type of vehicle by fuel and volume used of each based on vendor invoicing</td>
<td>4 CNG trucks (2021) using 60,000 GGE/year</td>
</tr>
<tr>
<td>Electricity</td>
<td>Source description and Grid (who is it purchased from)</td>
<td>PSE&amp;G (New Jersey Power/Electric &amp; Gas)</td>
</tr>
</tbody>
</table>

**Sample date for GRI Reporting**
Forward thinking organizations have recognized the benefits of setting public GHG reduction targets.

**Setting aggressive GHG reduction targets can:**
- Lead to the identification of additional reduction opportunities.
- Help garner senior management attention and increase funding for internal GHG reduction projects.
- Encourage innovation, improve employee morale, and help in the recruiting and retention of qualified employees.

**Choosing a Base Year for emission reduction efforts:**
- Once you have established your existing GHG emissions, you can set a reduction target.
- The Base Year must be a year for which verifiable emissions data are available.
- The Base Year should be chosen such that the target has sufficient forward-looking ambition.

*The Science Based Targets initiative (SBTi) is a collaboration between the CDP (was Carbon Disclosure Project), the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). Since 2015 more than 1,000 companies have joined the initiative to set a science-based climate target.*
How are Carbon Offsets and Credits alike:
- Both are accounting mechanisms representing compensation for the reduction or removal of GHG emitted somewhere else.
- Both represent the reduction or removal of one ton of carbon dioxide or its equivalent in other greenhouse gas.

How are Carbon Offsets and Carbon Credits different:
- A carbon offset is the removal of GHG from the atmosphere (carbon sequestration). Often considered voluntary.
- Carbon credit is a reduction in GHG released into the atmosphere. Often required by government policy (e.g. Cap-and-Trade programs).

Use of Carbon Offsets
- A GHG target can theoretically be met entirely from internal reductions at sources included in the target boundary, or it can be met through additionally using offsets that are generated from GHG reduction projects that reduce emissions at sources external to the target boundary.
- Forestry projects are becoming the fastest growing category: Renewable energy is another common type, and includes wind farms, biomass energy, biogas digesters, or hydroelectric dams.

Companies should work to reduce their emissions before using offsets from external sources.

Microsoft Corporation. Microsoft has committed to one of the country’s most ambitious corporate carbon-cutting programs, aiming to reach net-zero emissions by 2030. But since curbing emissions outright will take years, Microsoft is investing in projects to pull 1.43 million tons of carbon dioxide from the sky. That included 265,000 tons of CO2 that Microsoft had paid Green Diamond to remove by increasing the growth of trees.
**Changes to Company**

**Thresholds for recalculating base year**

- Organic Growth - no reset
- Small Acquisitions - <10%
- Large Acquisitions > 10%
- Divestitures

**Base Year Recalculated for an Acquisition**

Example: Base Year (A+B) is recalculated with Facility C to 65 MT CO2e, then added organic growth increase.
Absolute versus Intensity Metric

**Absolute Target**

Designed to achieve a reduction in a specified quantity of GHGs emitted.

**Advantages:** These are considered to be environmentally robust and more credible to stakeholders as it entails a commitment to reduce total GHGs by a specified amount.

**Disadvantages:** They do not distinguish between declines in production/output rather than performance.

**Example:** Reduce emissions by 10% from 2010 levels by 2015.

**Intensity Target**

Reflects GHG performance improvements independent of business growth or decline.

**Advantages:** An intensity target may increase the comparability of GHG emissions amount companies.

**Disadvantages:** They are less environmentally robust and less credible to stakeholders because absolute emissions may rise even if intensity decreases. Using a monetary metric (e.g. dollar of revenue may require recalculation due to changes in product prices and inflation.

**Example:** Reduce emissions per unit of revenue by 25% from 2021 levels by 2015.
Do you have questions about:

- Measuring changes in company (growth/acquisition)
- Emission Offsets and Credits
  - Absolute vs Intensity
Calculating Emissions
The first step in identifying and calculating a company’s emissions is to categorize the GHG sources within the company’s boundaries.

**GHG emissions typically occur from the following source categories:**

1. **Stationary combustion:** Combustion of fuels in stationary equipment.
2. **Mobile combustion:** Combustion of fuels in transportation devices such as automobiles and trucks.
3. **Process emissions:** Emissions from physical or chemical processes such as PFC emissions from aluminum smelting, etc.
4. **Fugitive emissions:** Intentional and unintentional releases such as equipment leaks from joints, seals, packing, gaskets, as well as fugitive emissions from wastewater treatment, cooling towers, gas processing facilities, etc.
5. **Electricity Use.** Purchased electricity for operations.

Every business has processes, products, or services that generate direct and/or indirect emissions.
US EPA’s Simplified GHG Emissions Calculator

• The US EPA’s Simplified GHG Emissions Calculator is designed as a simplified calculation tool to help small business and low emitter organizations estimate and inventory their annual greenhouse gas (GHG) emissions. The calculator will determine the direct and indirect emissions from all sources at an organization when activity data are entered into the various sections of the workbook for one annual period.

• The GHG Protocol currently references EPA’s calculator as a preferred resource for certain U.S. entities.

• The Simplified GHG Emissions Calculator is supported by Excel 2021 or later (PC and Mac).

• It free to use and was updated in 2023. It is generally updated on an annual basis.
The Calculator uses U.S.-specific cross-sector emission factors from the Emission Factors Hub. Many industrial sectors also have process-related emissions sources that are specific to their sector. EPA’s Greenhouse Gas Reporting Program provides guidance and tools that can aid in the calculation and reporting of these emissions:

- **DEFINE**: The first step in completing a GHG inventory is to determine the boundaries and emissions sources included within those boundaries. After you have defined your organizational and operational boundaries, you can use the questions on the “Boundary Questions” worksheet to help you determine which emissions sources are relevant to your business.

- **COLLECT**: The second step is to collect data for the defined annual period. This step is typically the most time consuming, since the data can be difficult to gather. This Calculator has help sheets with suggestions and guidance for each emissions source and a general help sheet for data management. Click the drop-down menu boxes below to navigate to these sheets.

- **QUANTIFY**: The third step is to calculate emissions. This Calculator is designed to complete the emissions quantification step for you. Once the user enters data in this MS Excel spreadsheet, the emissions will be calculated and totaled on the “Summary” sheet.

Before entering data, please:
- Enable Macros
- Familiarize yourself with the Simplified Guide to GHG Management for Organizations

The GHG Protocol also provides guidance on calculating emissions from industrial processes.

**Data Entry Tabs**

- **Activate**
  - Introduction
  - Boundary Questions
  - Summary
  - Stationary Combustion
  - Mobile Sources
  - Fire Suppression
  - Refrigeration and AC
  - Purchased Gases
  - Electricity
  - Business Travel
  - Commuting
  - Upstream Trans and Dist
  - Waste
  - Categorize
  - Unit Conversions
  - Heat Content
  - Emission Factors
  - Drop Down Help - Data Management
  - Help - Stationary Combustion
  - Help - Mobile Sources
  - Help - Refrigeration and AC
  - Help - Fire Suppression
  - Help - Purchased Gases
  - Help - Electricity
  - Help - Market-Based Method
  - Help - Steam
  - Help - Business Travel
  - Help - Commuting
  - Help - Upstream Trans and Dist
  - Help - Waste
  - Help - Categorize

**Overall:**
- **Boundary Questions**
- **Summary**

**Scope 1:**
- **Stationary Combustion**
- **Mobile Sources**
- **Fire Suppression**

**Scope 2:**
- **Electricity**

**Other:**
- **Unit Conversions**
- **Emissions Factors**
- **Help categories**
A Drive-Through of EPA’s Calculator Tool

Abbie Webb, Sustainability Director at Casella Waste Systems, and Chair of ISRI’s Sustainability Network will walk us through a sample MRF emissions calculation.
Greenhouse Gas Reporting at Casella

Background
- Began reporting in early 2000s
- Charter Members of EPA Climate Leaders
- 2012 Received EPA Climate Leadership Award

Our Inventory today
- Operational control boundary
- 81% landfills, 17% fleet, 2% heating and electricity
- If we include upstream/downstream, Scope 3 is about 30%

Why do we do this?
- Find ways to cut emissions and meet our goals
- Disclosures: CDP Climate, GRI, SASB, ESG raters, supply chain surveys, etc.
1. Compile Scope 1 and 2 data: Stationary Combustion, Mobile Combustion, Electricity
   - Need gallons, kilowatt-hours, therms, etc.
   - Break down by fuel type
   - Not dollars

2. Data Sources
   - Initially we sent annual survey to every division
   - Today our Accounts Payable team enters units as they process invoices; we run a quarterly report from our procurement database
   - Auditors like to tie back to invoices
Case Study – 2 sample recycling facilities (cont.)

Download EPA simplified GHG emissions calculator

https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator

I had to do this unblock step to enable the macros
Stationary Combustion

- Enter each facility and each fuel type
- Also enter square footage of each facility
- Bottom of page lists the calculated emissions

Table 1: Stationary Source Fuel Combustion

<table>
<thead>
<tr>
<th>Source ID</th>
<th>Source Description</th>
<th>Source Area (sq ft)</th>
<th>Fuel Combusted</th>
<th>Fuel State (solid, liquid, gas)</th>
<th>Quantity Combusted</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLR-012</td>
<td>East Power Plant</td>
<td>12,512</td>
<td>Natural Gas</td>
<td>Liquid</td>
<td>10,000</td>
<td>MMBtu</td>
</tr>
<tr>
<td>MRF-B</td>
<td>Facility A</td>
<td>61,250</td>
<td>Liquefied Petroleum Gases &amp; Fluid</td>
<td></td>
<td>13,910</td>
<td>Gallons</td>
</tr>
<tr>
<td>MRF-B</td>
<td>Facility B</td>
<td>128,750</td>
<td>Natural Gas</td>
<td>Gas</td>
<td>21,119</td>
<td>Them</td>
</tr>
</tbody>
</table>

- Total Non-Fossil Fuel Emissions: 0.0
- Total Emissions for all Fuels: 191,097.1
- Total Emissions for all Fuels (metric tons): 6.014.0
- Total Emissions for all Fuels (metric tons): 1,840.4
Mobile Combustion

- Enter by facility and fuel type
- Both sites have on-road diesel trucks; one also has propane forklifts
- On-road vehicles also need vehicle year and miles traveled; I estimated both for this demo
Electricity

- Enter kWh by facility
- Enter square footage
- I’m using location-based only
- In my case, both sites are in the NEWE e-Grid Subregion
### Summary Report

- Emissions by activity and scope
- Total Scope 1 and 2 emissions

EPA’s tool also includes tabs for select Scope 3 categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Scope 1 Emissions</th>
<th>Location-Based Scope 2 Emissions</th>
<th>Market-Based Scope 2 Emissions</th>
<th>Total organization Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary Combustion</td>
<td>182 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td>2,218 CO₂-e (metric tons)</td>
</tr>
<tr>
<td>Mobile Sources</td>
<td>918 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigeration / AC Equipment Use</td>
<td>0 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Suppression</td>
<td>0 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchased Gases</td>
<td>0 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchased and Consumed Electricity</td>
<td>1,106 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchased and Consumed Steam</td>
<td>0 CO₂-e (metric tons)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Share something your company has done to reduce your carbon footprint.

What was the decision process like? How has the implementation gone? What outcomes or benefits did the company realize?
What questions do you have about environmental components of ESG?
• SREA
• VOC Emissions Factors for Shredders
• RIOS
• Staff & Peer Support
<table>
<thead>
<tr>
<th>Month (2023)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 8</td>
<td><strong>Overview, Materiality and Governance. These provide an important overlay for ESG strategy.</strong> What do stakeholders think is important, or material, about your company. The role of data, policies and guidance associated with good governance play an important role in the ESG strategy dialogue.</td>
</tr>
<tr>
<td>July 20</td>
<td><strong>Strategy, Goals &amp; Community</strong> Descriptions and supporting documents to help develop key topics supporting ESG. Understanding the “S” of Social in ESG.</td>
</tr>
<tr>
<td>August 10</td>
<td><strong>GHG Emissions and Carbon Footprint:</strong> A look at GHG emissions, and an introduction to Scopes 1, 2 and 3 emissions.</td>
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<tr>
<td>September 14</td>
<td><strong>Value Creation &amp; The Whole Works Mapping Tool</strong></td>
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<tr>
<td>October 12</td>
<td><strong>Understanding Scopes 3 &amp; 4:</strong> What are they, and how are they counted?</td>
</tr>
<tr>
<td>November 9</td>
<td><strong>Reporting Frameworks</strong></td>
</tr>
<tr>
<td>December 7</td>
<td><strong>Looking Ahead to 2024:</strong> A review of the toolkit. Taking time to look ahead to future trends and program needs.</td>
</tr>
</tbody>
</table>
Upcoming ISRI Events

In-Person:
• The Roundtables | Chicago, September 6-8
• ISRI 2023 Fall Meeting | Denver, October 16-18
• Shredder Operations & Safety Forum | Atlanta, October 25-27

Virtual Events:
• ESG Workshop #4 - Value Creation and the Whole Works Mapping Tool | September 14
• Hazard Recognition: Fire Safety & Prevention in Recycling Presented in Spanish: August 22-23

Chapter Events:
• Michigan Chapter Golf Outing | Ypsilanti, MI, 14 August 2023
• Ohio Valley Chapter Annual Golf Outing & Dinner Monday | Florence, IN, August 14, 2023

https://www.isri.org/events-training/
Thank you