

ReMA's ESG Series: Emissions Reductions- Practical How-To's

May 16, 2024



Recycled Materials
Association
Sustainable. Resilient. Essential.

recycledmaterials.org



Recycled Materials Association

Sustainable. Resilient. Essential.

- Our new name more clearly communicates what we make, the value we provide, and the ways we touch millions of lives every day.
- The tagline conveys the industry's core benefits to society and attributes.
 - **Sustainable** – helping protect the environment
 - **Resilient** – providing materials that strengthen the economy
 - **Essential** – providing what we need to make everyday life better



2024 ESG Webinar & Resources

May 16- Emissions Reductions

June 13- New Rules, New Resources: SEC Ruling & ESG Toolkit

August 29- Employees & the Workforce

November 21- ESG Policies & Regulations

- 2023 Workshop Series available: <https://videos.isri.org/category/video-library/esg-workshops/>
- ESG Toolkit: follow QR Code

ReMA Anti-Trust Policy in Effect: isri.org/antitrust



Recycled Materials
Association



Presenters



Natalie Betts
ReMA



Kiera Gittins
Radius Recycling



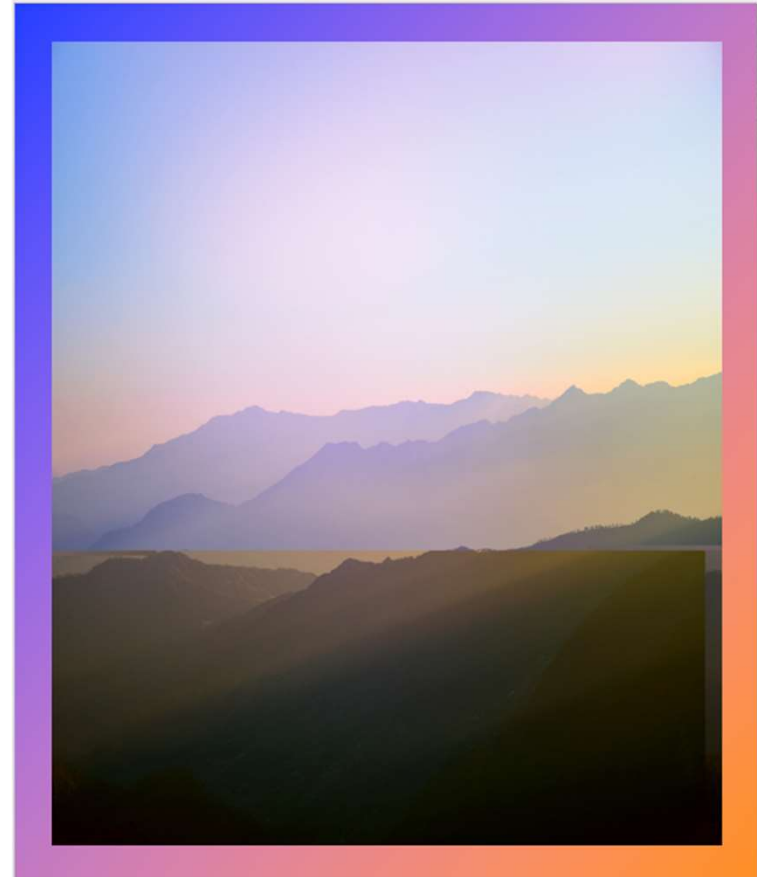
David Hirschler
ERI Direct



Susan Robinson
ReMA Consultant

Agenda

- **Introduction**
- **Emissions Overview**
- **Goals, Data, Driving Reductions**
- **Examples**
 - ✓ Radius Recycling
 - ✓ ERI Direct
- **ReMA Upcoming Events**



Sustainability is more than Emissions



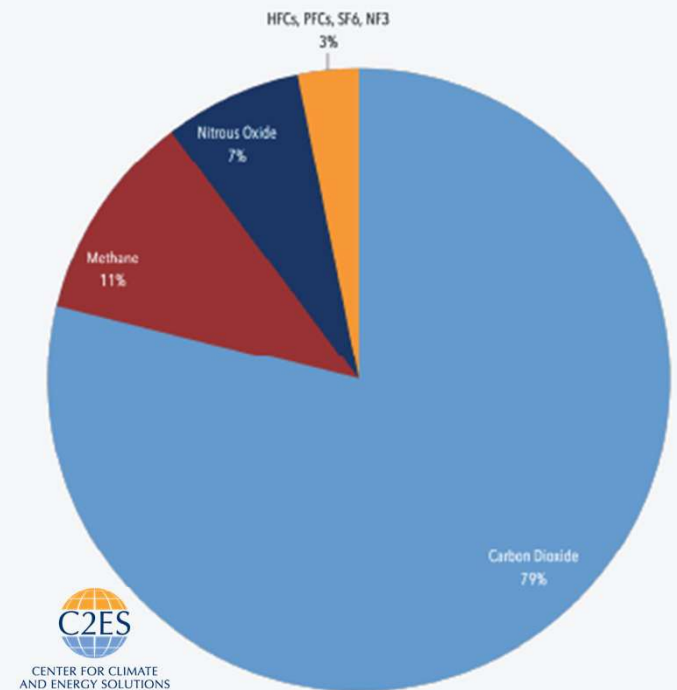
While sustainability encompasses a broad range of topics, our focus today is on emissions, and how companies have taken action to reduce their emissions.

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)

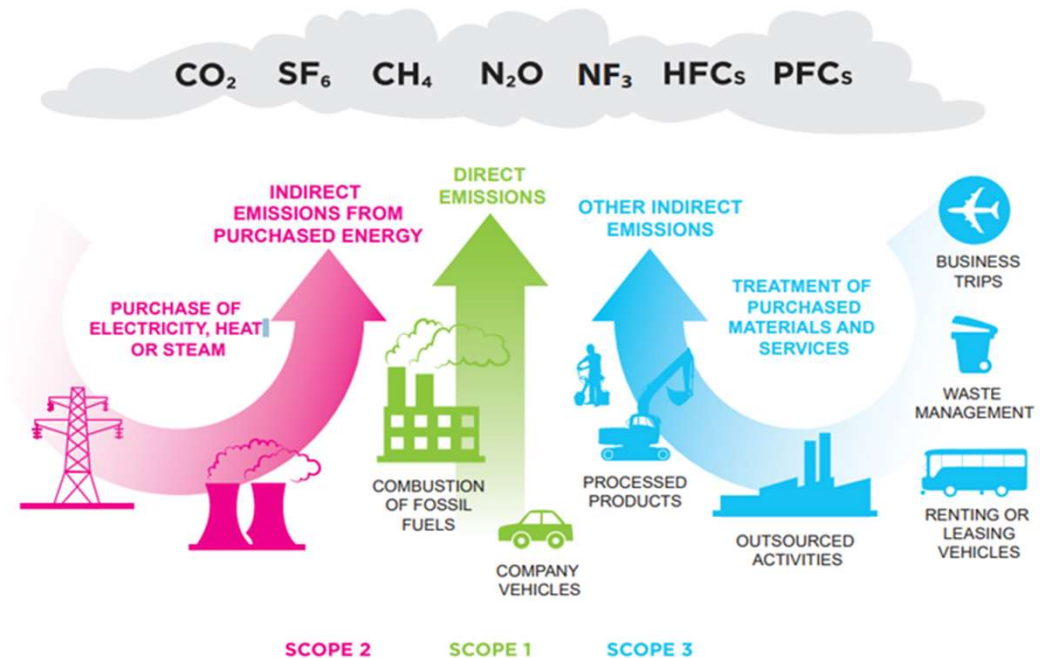
Overview of Greenhouse Gas Emission in 2020



Categories of Emissions: "Scopes"

Three categories of Emissions are used for accounting and reporting.

- **Scope 1** emissions are all direct emissions from the operations of the company which are directly controlled by the company, such as fuel combustion in equipment and vehicles.
- **Scope 2** emissions are indirect emissions specifically from electricity purchased by the company.
- **Scope 3** emissions are indirect emissions that are part of a company's supply chain, including business travel, employee commuting, waste management, embodied emissions in purchased goods, services from third parties, outsourced activities, etc.



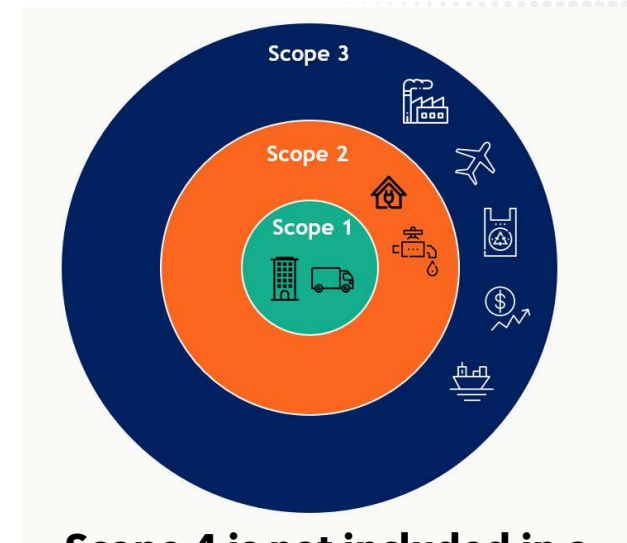
Avoided Emissions

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.

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

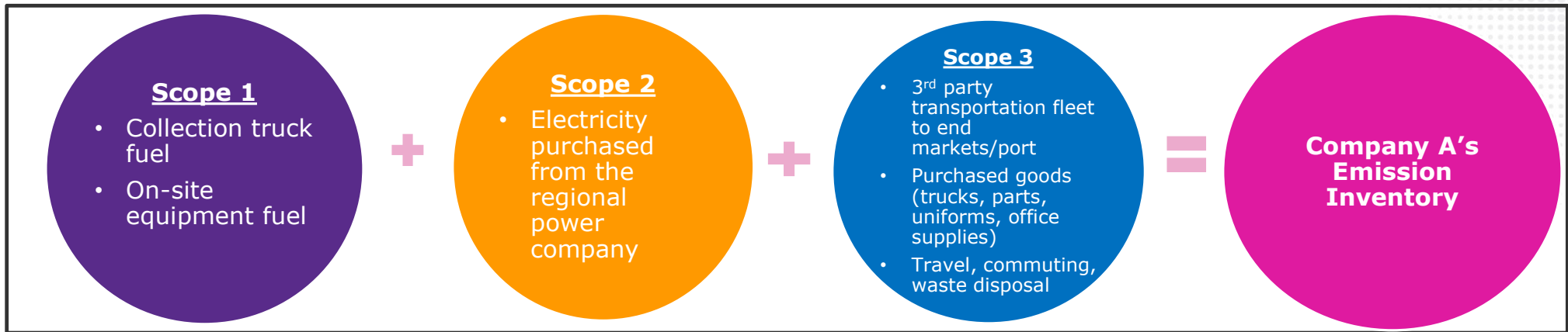


Scope 4 is not included in a company's direct or indirect emissions.

Emissions Inventory Example

Company A provides recycling collection and sorting services.

Through their GHG emissions inventory process, the company identified the following primary emissions:



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.**

Taking Inventory, Setting Goals





Reducing Emissions:

What does a company need to do to implement a strategy to reduce GHG emissions?

- What does it take?
- What are some of the challenges & successes?



Emissions Reduction Initiatives

May 16th, 2024

About Radius Recycling



Pick-n-Pull and Metals Recycling Facilities collect and shred salvaged vehicles, appliances, and industrial materials



Our steel mill melts down these materials into billets, which are then turned into rebar and coils.



Billets, rebar, and coils are sold to construction companies, who turn them into bridges, highways, buildings, and other structures.

Our Achievements



In 2023, we surpassed our goal to reduce absolute Scope 1 and 2 GHG emissions from recycling operations by 25% versus our 2019 baseline. This was nearly two years earlier than anticipated! Here is how we did it.

Identifying Achievable Emissions Goals

Obtaining and Maintaining Data

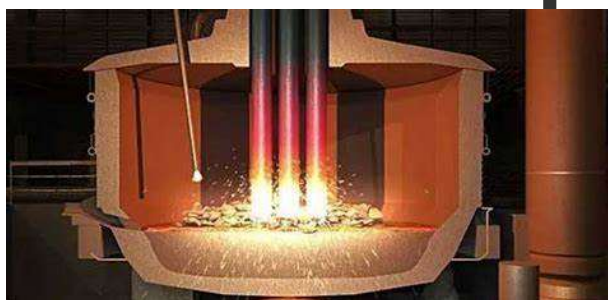
What we needed to get started:

- A system to track our data – we decided to use an online bill pay service. This service allows us to track our invoices and generate usage reports.
- Identify a base year – we determined our base year to be 2019
- Identify areas of greatest impact – we found our largest emission sources to be the following:



Identifying Achievable Emissions Goals

Understanding our EAF



- Our company has one mini-mill, Cascade Steel Rolling Mills (CSR) in McMinnville, Oregon.
- Our mill utilizes an Electric Arc Furnace (EAF) to melt down scrap obtained from our scrap yards and from other sellers.
- EAFs are the best way to create pure steel from scrap, but they use large amounts of electricity.
- Our steel mill uses up about 75% of all our electricity, across 106 sites. However, it only accounts for about 15% of our Scope 2 emissions.
- The low emissions of our EAF are due to its power source. 96% of its power comes from green power (mainly hydroelectricity)



In 2022, we took the clean nature of our steel one step further, with GRN Steel, a line of net zero carbon emission products.

This was achieved through offsetting our already low emissions through renewable energy credit (REC) purchase programs.

Identifying Achievable Emissions Goals

Finding the Right Technology

- We chose to install a Regenerative Thermal Oxidizer (RTO) at our 5 mega shredders
- RTOs use heat, residence time, and turbulence to break the bonds of hydrocarbons and convert them to CO2 and water. This helps them to reduce 97% of all VOCs from a shredder system.

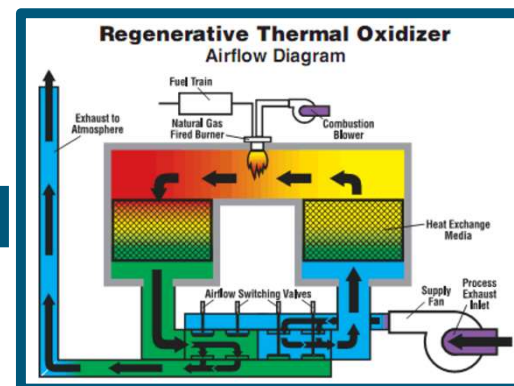
- RTOs require a significant amount of natural gas to obtain the needed temperatures.

However, the CO2 emissions from the natural gas have a lower GWP than the VOCs it is burning. These systems have helped us obtain our emissions reductions goals since the installation of our first RTO in Everett in 2022.

Location	Status	Result / Expected Result
Everett, MA	Commissioned and operational since end of fiscal 2021.	Result: Eliminated more than 17,000 mtCO2e since installation.
Oakland, CA	Commissioned and operational since Q3 of fiscal 2022.	Result: Eliminated more than 3,600 mtCO2e since installation.
Portland, OR	In permitting and expected online in early 2024.	Expected Result: Estimated to eliminate more than 1,500 mtCO2e annually once installed.
Tacoma, WA	In permitting.	Expected Result: Estimated to eliminate more than 3,000 mtCO2e annually once installed.
Kapolei, HI	Enclosure and particulate matter emissions control system in design.	

Global Warming Potential Comparison


Carbon Dioxide: 1
 Methane: 28
 Nitrous Oxide: 265
 Other Pollutants: up to 23,000



Identifying Achievable Emissions Goals


Investing in Fleet & Facility Efficiency

Our approach to reducing our emissions footprint includes efforts to upgrade equipment and source fuel from more alternative sources.



Equipment

- Every year, we invest millions of dollars to upgrade our frontline equipment
- In 2023, we introduced our first-ever electric harbor crane at our Everett, Massachusetts facility. In its first partial year of service, it eliminated our use of roughly 46,500 gallons of diesel fuel.
- We were also able to work with Bay Area Air Quality Management District to place electric tractors in four California locations



Fuel

- In fiscal 2023, 7% of the fuel used to power our fleet and equipment came from alternative sources.
- We are working with fuel vendors to source more biodiesel
- One gallon of biodiesel produces 74% less emissions than petroleum diesel
- Even a lower percentage of biodiesel, B20, can decrease hydrocarbons, particulates, and air toxics by about 12%

Sources

- [Microsoft Word - Global-Warming-Potential-Values.docx \(ghgprotocol.org\)](#)
- [What Is the Carbon Footprint of Biodiesel? A Life-Cycle Assessment | Impactful Ninja](#)





People. Planet. Privacy.™

REMA Emissions Reductions Webinar

May 16, 2024

Our Company



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- Founded in 2002
- 850 employees
- Headquartered in Fresno, CA
- Largest Electronics and IT Asset Disposition provider in the U.S.
- Eight U.S. Facilities servicing every ZIP code in the U.S. with global reach / partner network
- Fully integrated end-to-end solution providing in-house data destruction, processing, remarketing, recycling, logistics, and electronics legislative compliance services
- Most collapsed and direct downstream footprint in the industry with direct-to-smelter relationships
- Innovative and proprietary robotics and artificial intelligence (AI) equipment, technology and software
- Top U.S. market share and brand leader
- Over 2.5 billion pounds recycled and remarketed (approximately 200 million pounds annually)
- Clients across all major industries and all levels of government

**Headquartered in
Fresno, CA, USA**

**Servicing every ZIP code
in the U.S. with global
reach / partner network**

Eight (8) U.S. Processing Facilities

Fresno, CA • Sumner, WA • Flower Mound, TX • Goodyear, AZ
Plainfield, IN • Badin, NC • Holliston, MA • Lincoln Park, NJ

Global partner network covering over 130 countries.

Highest Environmental & Data Security Certifications



First and currently the only company in the world with e-Stewards, R2, and NAID AAA Certifications at eight locations



ISO 14001



ISO 45001





ISO 9001



U.S. Locations & Global Partners



-  ERI
-  International Partner

Electronics and IT Asset Disposition

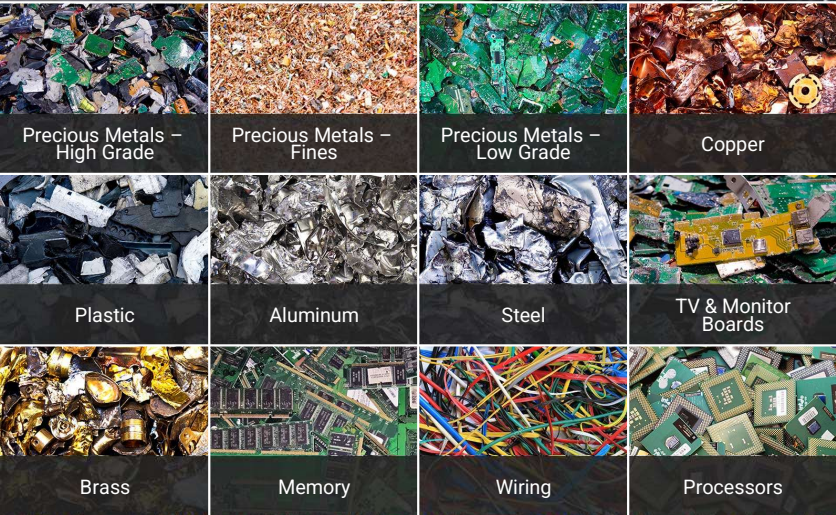
Remarketing

- Asset Disposition of traditional IT equipment, consumer electronic devices, as well as all types of specialized electronics such as POS devices, medical electronic equipment, and ATMs
- Asset management tracking transparency including registration, serialization, testing, valuation and remarketing
- Maximizes revenue for a diversified product portfolio
- Parts harvest when the value of the parts exceed the value of the whole unit
- Most competitive revenue share opportunities for clients due to in-house end-to-end servicing
- Re-deployment services

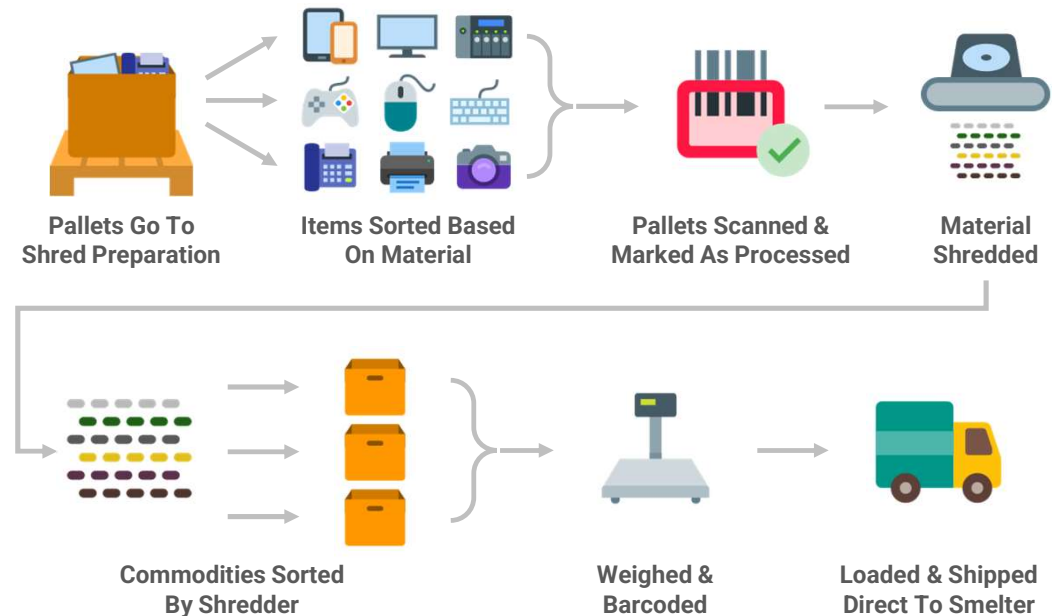


CORE SERVICES

Electronics Recycling



- Largest electronics shredding capacity in the world
- ERI's fully integrated solution process allows for processing to the commodity level
- All commodities are sent to approved audited vendors and vetted through ERI's Downstream Vendor Management Program



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CORE SERVICES

Legislative Compliance

Comprehensive turnkey compliance for state e-waste and consumer take-back programs:

- Extended Producer Responsibility (EPR)
- Advanced Recycling Fee (ARF)



State Planning



Collection Network Setup



Collection Execution



Obligation Management



Transportation & Materials Recycling



Value Chain Audits



Invoicing & Reporting



Public Education Tools



ERI's ESG & Data Security Report



This fully illustrated, 60-page document shares ERI's mission-based and ESG-related insights and analysis pertaining to:

- Environmental resources management
- ERI's carbon footprint
- Innovation and improvements
- ERI's role in the circular economy
- Downstream management for responsible recycling
- Managing data privacy risks
- Environmental health and safety
- ERI's position on radical transparency
- ERI's track record with diversity, equity & inclusion (DE&I)
- Community outreach, education and philanthropy
- Future direction and goals

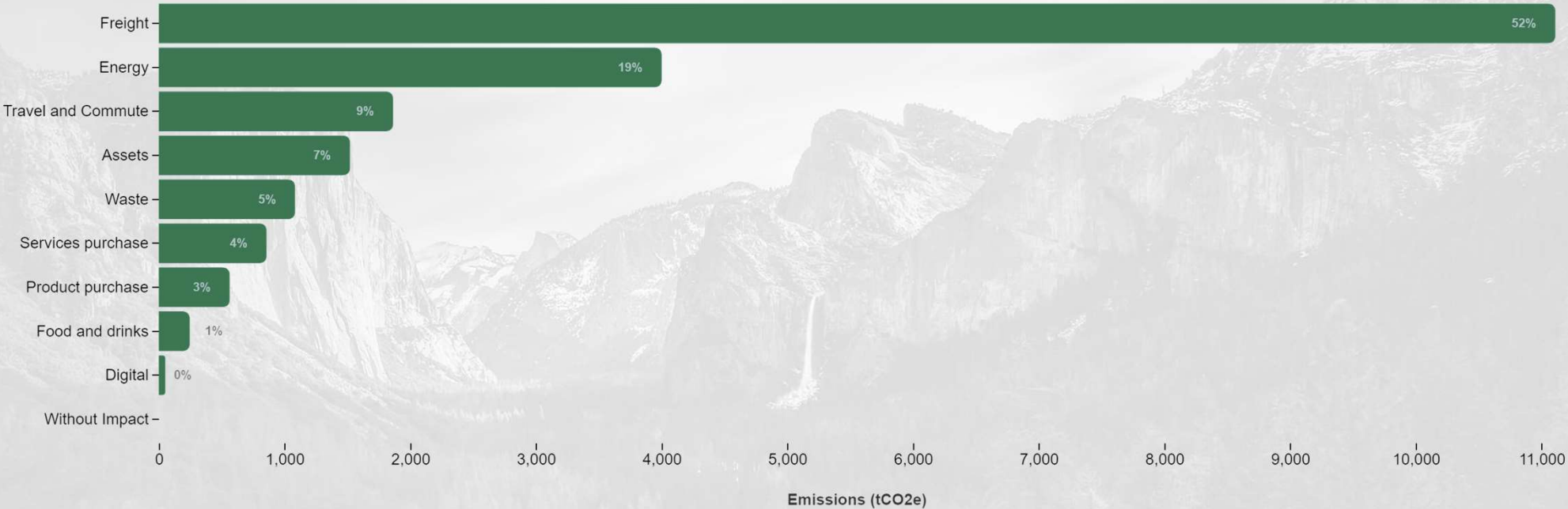


Available at: <https://eridirect.com/2022-esg-data-security-report>

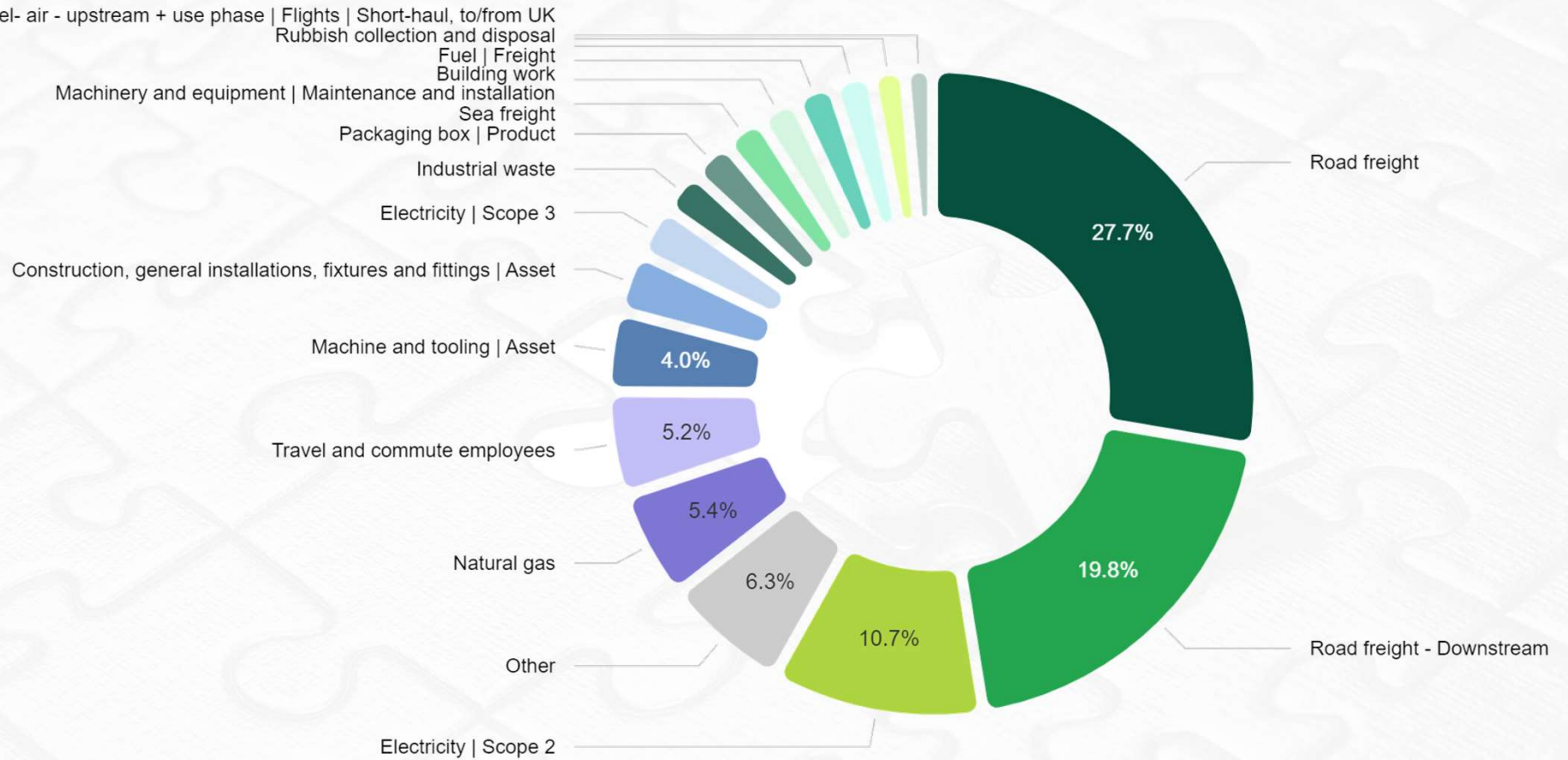
ERI's Emissions Breakdown



Emissions by Category



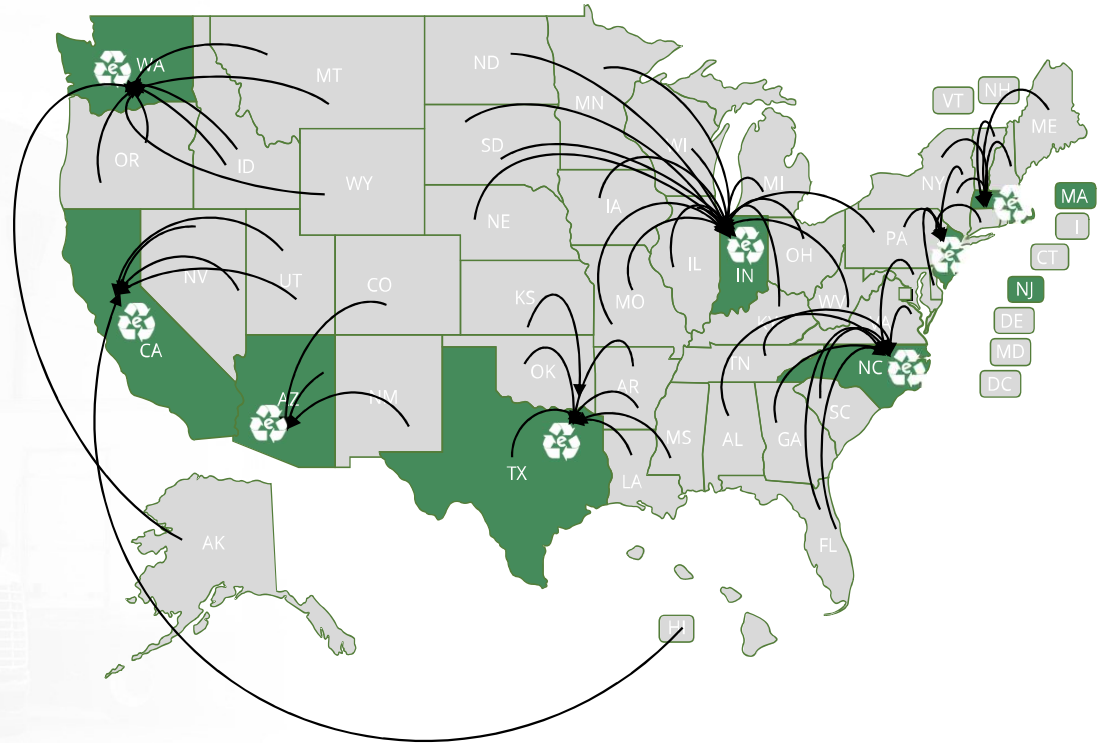
ERI's Emissions Breakdown – Q1 2024 Highlights



Freight Efficiency



- ERI system reduces freight costs by traveling minimum required distances
- CO2 footprint is reduced 3-fold by utilizing ERI nationwide footprint
- ERI has improved our fuel consumption tracking procedures to monitor and identify issues
- ERI tracks our impacts on improving truck efficiency
 - Average Miles Per Shipment: 294.27
 - Average Weight Per Truck (non-courier): 14,208 lbs.
 - Average Daily Idle Time: 35 Minutes



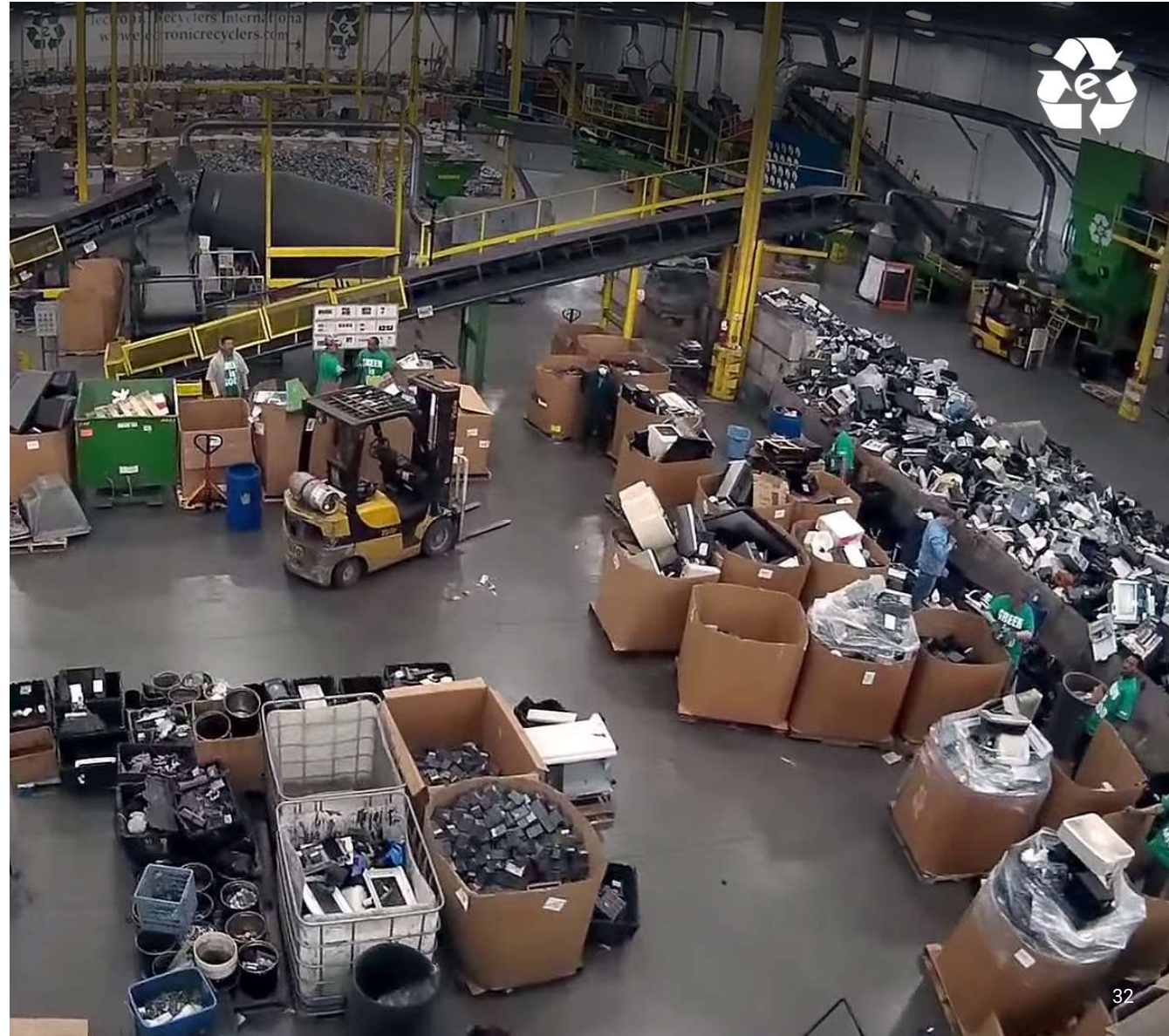
SUSTAINABILITY INITIATIVES

Industrial Fleet Electrification

ERI moves large volumes of equipment throughout our facilities.

ERI uses almost 90% electric forklifts and is exploring electrification of additional industrial equipment.

This combined with our sourcing of Renewable Energy at our facilities greatly decreases our emissions.



Building Efficiency

1. Facility Audits

ERI brought in a team to perform energy audits at a subset of our facilities in order to better identify gaps and additional areas of improvement.

2. Off-Peak Operations

ERI's shred operations are energy intensive operations. ERI has introduced adjusted schedules to reduce carbon intensity and minimize high electricity operations during peak hours.

3. LED Lighting

ERI's energy analysis found that a transition to LED lighting would greatly increase the energy efficiency at our operations.

This project took about 5 years to implement and included negotiations with landlords and management of vendors to implement conversions of:

1. 8 operations facilities
2. Headquarters
3. 2 storage facilities
4. 8 facility office areas



Waste Diversion Dashboard



- Looks at facility level waste, recycling, and reuse data.
 - Encourages higher reuse recovery from e-waste processes
 - Encourages facilities to find alternatives for their products being sent for disposal.
 - Encourages facilities to better track non-e-waste that is leaving their facilities.
 - Encourages further conversations around solutions.
- Initial response has supported a range of initiatives:
 - Large focus on product packaging recovery including
 - Film
 - Foam
 - Printed Packaging
 - Improved reuse of packaging and supplies
 - Facilities reuse packaging internally
 - Transfer packaging back to clients and/or intercompany
 - Separate from Dashboard, ERI has purchased used 10s of thousands of used pallets, gaylords, and supersacks for movement of material.



Employee Engagement

- Employee Buy-In is key to success. ERI actively communicates with our employees on our environmental initiatives.
- Employee Feedback Requests
- Employee ESG Report Highlights
- Communicating with staff prior to implementing new initiatives.
- Including efficiency and other environmental initiatives as part of employee's Objectives and Targets.

Employee Highlight - Nancy Vazquez

We believe in empowering and upskilling our employees to achieve leadership roles within ERI.

For example, Nancy Vazquez was promoted as ERI's HR Manager where she attributed her "ability to take a lead role" and "attention to detail has proven to be a valuable skill with identifying potential risks within the organization from an HR perspective."

Nancy's role in HR-working with employees while maintaining compliance standards displays the cross-functional collaboration required across different departments within ERI.



Nancy Vazquez, ERI's HR Manager



April 2024

Earth Day

April 22, 2024

ERI is the world's first electronic recycling and ITAD company to be 100% carbon neutral.



To learn more about ERI's collection event visit our webpage or use the QR code. Visit our *About ERI* to learn more about ERI's commitment to provide safeguards for the environment.

Our Chief Sustainability Officer David Hirschler is asking for feedback from the public to continue our carbon neutral status. Thoughts or comments can be discussed with an HR representative or emailed to JSS@ERIdirect.com



Feedback Wanted for our New Carbon Neutrality Suggestion Box

Our carbon neutral status achievement is part of an ongoing effort and commitment to getting better and better!


As we all continue to grow our knowledge and learn how to proactively participate and help others successfully reduce their carbon footprint, I invite you – friends, family and supporters of ERI – to share your advice, learnings and suggestions pertaining to best practices and suggestions regarding how we can continue to do even more as part of the carbon neutral movement.

Please send your thoughts and comments to me directly at JSS@ERIdirect.com.

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Q&A



ReMA Summer Calendar

Virtual Events

- Navigating OSHA's Expanded Worker Walkaround Rule: May 22
- It's Getting Hot in Here: Best Practices for Heat Illness Prevention: May 29
- ESG Webinar Series Bonus Webinar on SEC Ruling & ESG Toolkit: June 13

In-Person Events

- ReMA Spring Safety & Environmental Conference (ISEC), Indianapolis, IN: June 4-6
- Battery and Critical Mineral Recycling Conference: June 17-18 (ReMA Partner Event)

Thank You

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