Better Plants
U.S. DEPARTMENT OF ENERGY

Implementing a Waste Diversion Program

Virtual INPLT Training

Session 7

Tuesday – June 6, 2023

10:00 am – 12:30 pm EDT

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DOE's Waste Reduction Network:

- Open to all existing Better Plants partners
- Goals are flexible
- Six goal options based on partner feedback
- Quarterly webinars
- Bi-monthly newsletter
- Access to new waste-related tools, trainings and programmatic elements

Waste Virtual INPLT Agenda

- **Week 1 (April 25th) – Introduction: Waste Diversion and Reduction 101**
- **Week 2 (May 2nd) – How to Effectively Track and Measure Your Waste**
- **Week 3 (May 9th) – Source Reduction and Waste Minimization Techniques**
- **Week 4 (May16th) – Finding Outlets for Hard to Manage Waste Streams**
- **Week 5 (May 23rd) – Construction Waste Management and Green Building Certifications**
- **Week 6 (May 30th) – Scope 3 Emission Considerations**
- **Week 7 (June 6th) – Implementation of a Waste Diversion Program – Developing a Roadmap to Zero Waste**
- **Week 8 (June 13th) – Conclusions, Summaries, and Wrap up Presentations**

Plan of Action

Today, we will:

- Review the previous training
- Discuss the homework
- Lecture on today's topic, "Implementing a Waste Diversion Program"
- Test your knowledge with a Kahoot! quiz
- Conduct a Q&A session

Takeaways

Today, you will learn:

- How to prioritize waste reduction opportunities
- How to structure a waste diversion program
- What should be included in a roadmap to zero waste to landfill

Presenters from Sustainable Solutions Corporation

Lora Urbaniak, LEED Green Associate
Senior Project Manager
Sustainable Solutions Corporation

Nick Mummau, LEED Green Associate
Project Manager
Sustainable Solutions Corporation

Quick Review

Remembering Session 6

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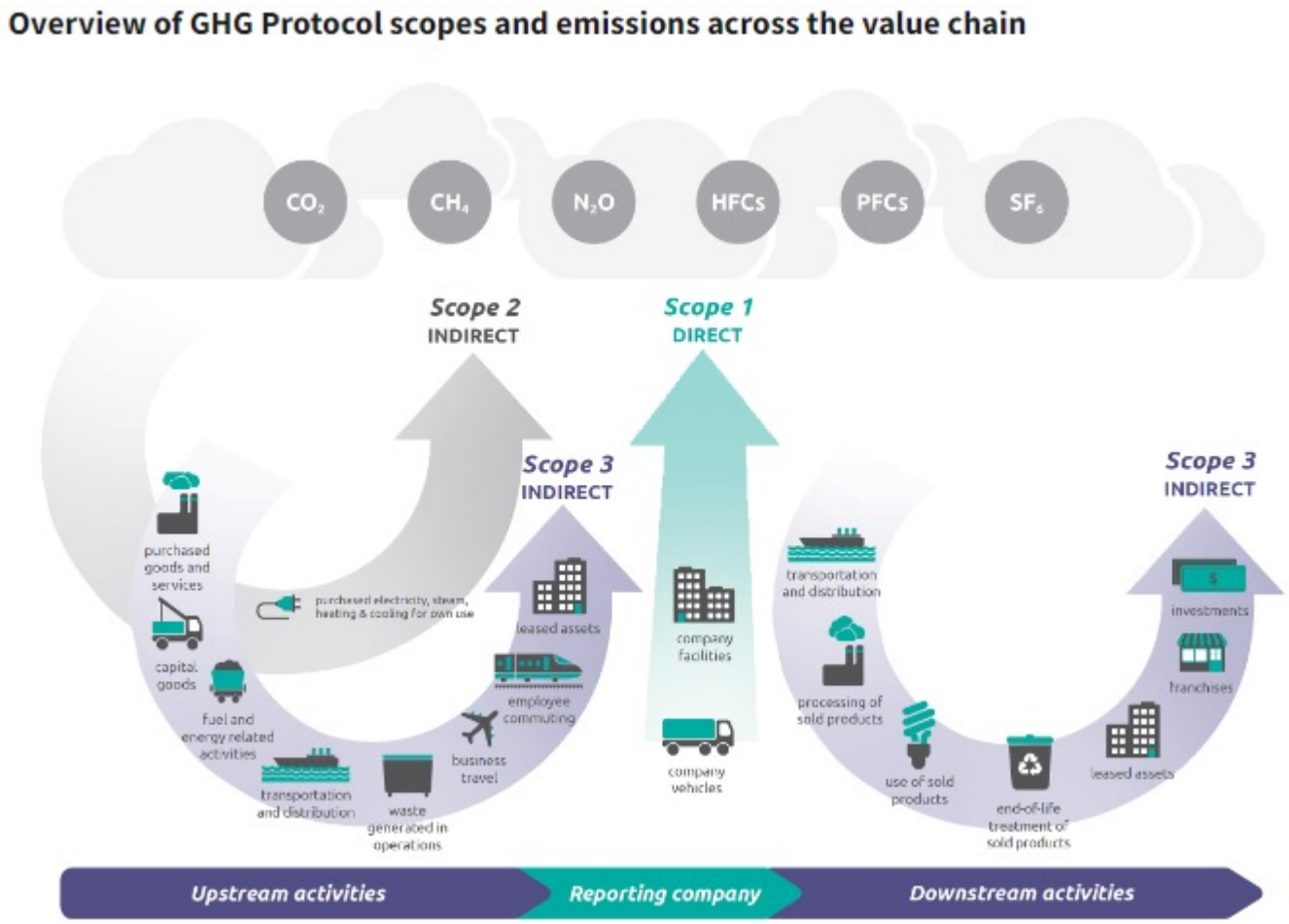
Session 6 Review: Which of the following would not fall under Scope 3 emissions?

Please respond to the Zoom poll

Answer: Onsite water treatment

Review: Scope 3 Emission Considerations



GHG Protocol

In the last session you learned:

- Overview of greenhouse gas reporting frameworks
- Various categories for Scope 3 emissions
- Calculation methodologies for quantifying Scope 3 emissions
- How to integrate sustainability into sourcing and procurement

Homework Discussion

Homework Takeaways

Overview

- Estimate the current waste diversion rate for the site. Considering the strategies discussed over the previous sessions, identify minimizable or divertible wastes and state their influence on the diversion rate.

Takeaways

- Diversion rates were variable company to company and industry to industry
  - Ranges were from under 50% up to 100%
- Regardless of diversion rate, homework noted streams that could be minimized
  - Proposed minimization increased diversion rate varying amounts
- Efforts to implement strategies to increase the diversion rate would involve numerous parties

Today's Topic:
Implementation of a Waste Diversion Program

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Prioritizing Reduction Opportunities

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Question: What are some things that could influence the priority of waste reduction opportunities onsite?

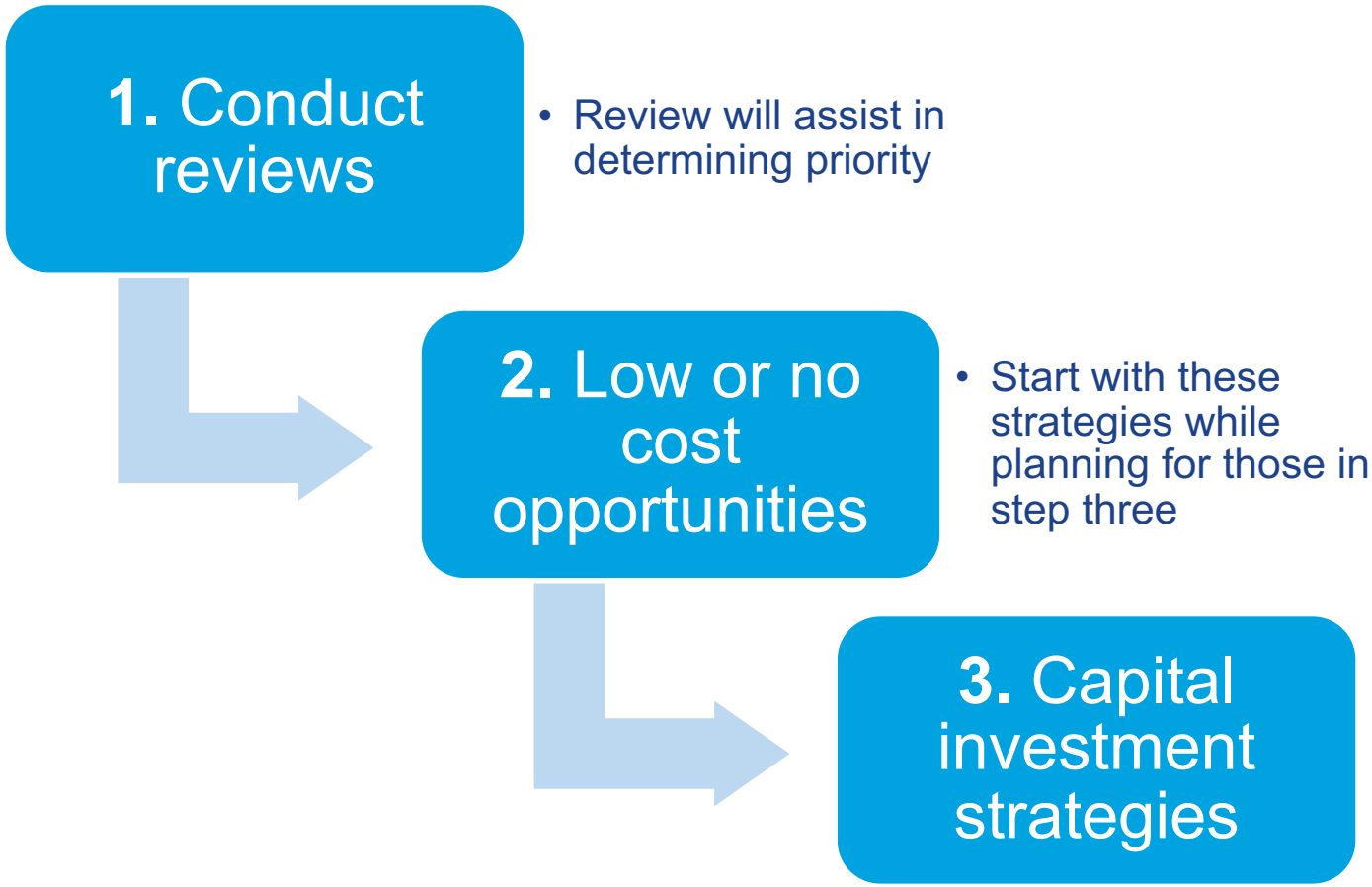
Please type your responses in the chat

Variation in Priority

- Priority of waste reduction and minimization opportunities will vary site to site, company to company, and industry to industry
- Influences on these priorities could be
  - Company sustainability goals and their timeline
  - Corporate or stakeholder pressure
  - Legislation
  - Buy-in from company or personnel
  - Availability of
    - Personnel
    - Space at facility
    - Capital
    - Local waste outlets

What are the Steps?

In general, completion of step one establishes prioritization for steps two and three:



Prioritizing Reduction Opportunities

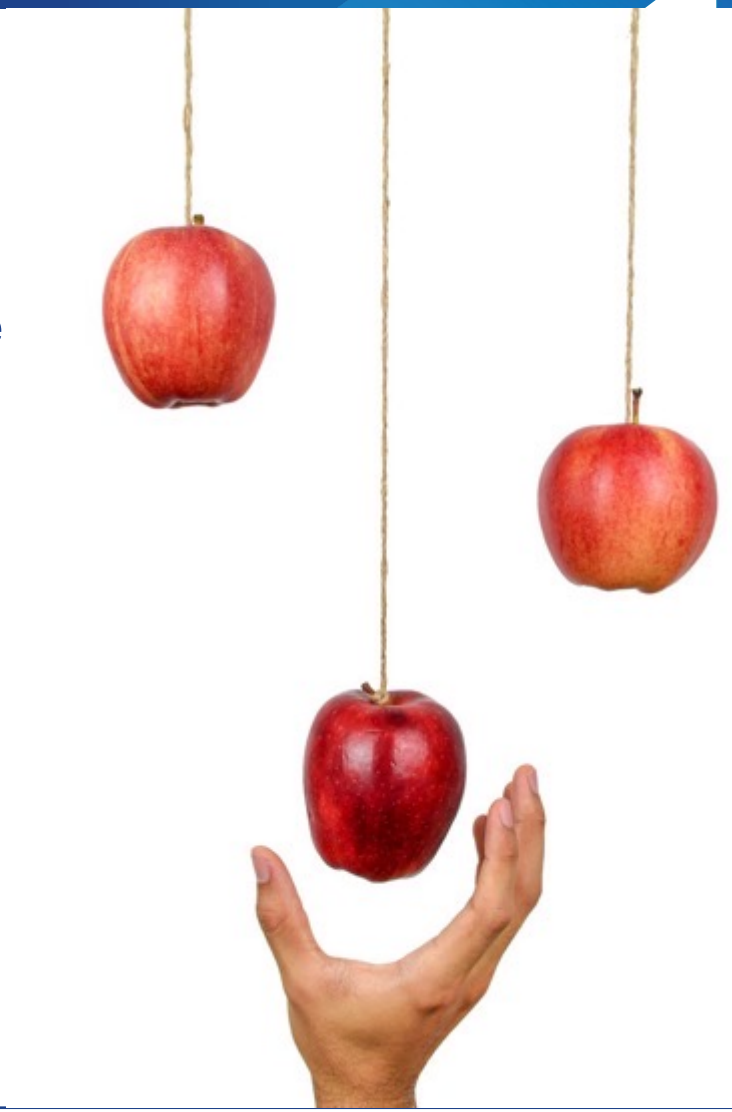
How to prioritize reduction opportunities?

- Begin with a review of:
  - Relevant data
    - Waste, raw materials and packaging volumes, frequency, and costs
  - Waste handling and segregation onsite
  - Manufacturing processes
  - Relevant policies or procedures
  - Stakeholder interest
  - Competitor commitments or progress
  - Applicable regulations
- Utilize review to identify opportunities

Prioritizing Reduction Opportunities

How to prioritize reduction opportunities?

- Begin with low or no cost opportunities
  - Review procedures and processes onsite and work to improve
    - Improving data collection, tracking, and review
    - Conducting employee trainings
    - Improving housekeeping and inventory control
  - Increasing segregation onsite
    - Implement signage
    - Reorganize bin locations
  - Identification of waste outlets to better divert waste streams
    - Establishing takeback programs with suppliers
    - Baling or compacting waste streams
  - Simple strategies for implementation
    - Purchasing a raw material in bulk



Prioritizing Reduction Opportunities

How to prioritize reduction opportunities?

- Continue with opportunities which may take longer time, effort, or capital to design, plan, and implement
  - Redesigning a product to incorporate recycled materials
  - Optimizing product or packaging size
  - Upgrading equipment to reduce waste generated

Prioritizing Reduction Opportunities

How to increase waste diversion through reduction opportunities?

- Establish a plan!
- Organize steps to achieve a waste minimization and diversion goal
  - Steps may be based on logical priority, time and effort, number of personnel needing involved, capital, and more
    - For example, you may not be able to divert a waste stream until you segregate it from other waste streams

Developing a Waste Diversion Program

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What is a waste diversion program?

- An organized plan including varying personnel which helps ensure continual progress on waste minimization and diversion efforts

OPERATION ZERO WASTE

8-Step Process to Achieve Zero Waste to Landfill

Waste Diversion Program Overview

What should the program include?

- Establish a Green Team
  - Determine key personnel
- Gather and review data
- Determine areas of focus for minimization and diversion
- Establish policies and procedures
- Review program regularly

Poll: True or false – a Green Team should only include people with job roles and responsibilities related to the environment.

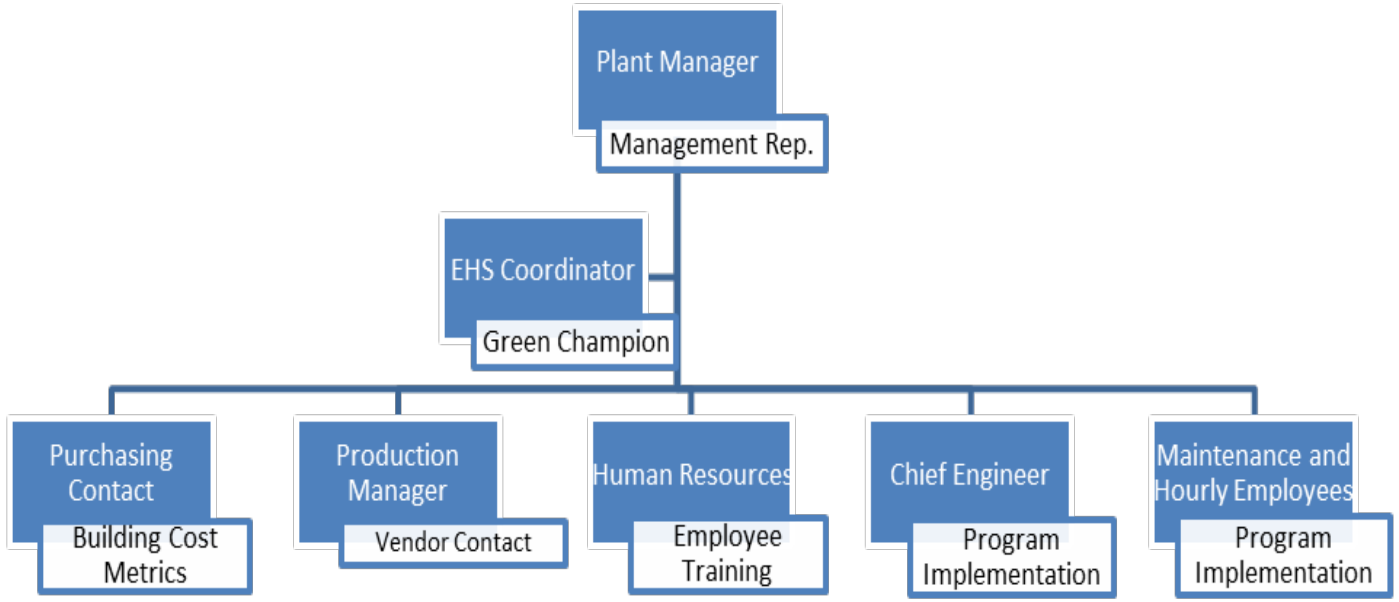
Please respond to the Zoom poll

Answer: False

Establish a Green Team

Who should be involved?

- Key personnel from various areas who:
  - Are from different levels of the organization's structure
  - Can give context to data
  - Knows how waste streams are segregated, generated, and handled
  - Oversee waste hauler contracts and communication
  - Are best suited to identify and implement possible solutions
  - Are involved with:
    - Procurement
    - Production
    - Finance



Green Team Communication

- How can personnel from various areas support each other on sustainability initiatives?
  - Bring considerations on how changes will influence other areas
  - There is value in having different viewpoints
    - Example: To influence change, one group may just need potential waste diversion rate increase, another may need the cost benefit, and a third may only be interested in influences to production metrics
  - Ask critical questions
    - How do the proposed changes influence our sustainability goals?
    - How will stakeholders, customers, or suppliers view these changes?
    - How should we market the sustainability story or these changes?
    - If this change saves the company money, how should this money be used?
    - Will the time to pay for or implement changes impact other areas of the facility?
      - Will other budgets be trimmed?
      - Will processes be interrupted?

Gather and Review Data

Recall strategies from Session 2

- Obtain data for:
  - Waste and raw material frequency, volumes, and costs
  - May have to work with suppliers and MMOs
- Review data trends
- Benchmark
  - Metrics for benchmarking such as production or operating hours
  - Utilize benchmark and trends to establish key performance indicators

- Establish data review procedure including:
  - Personnel in charge of gathering and reviewing data
  - Frequency of review
  - Considerations for ensuring quality control
- Determine what (if any) metrics should be disclosed

Determine Areas of Focus

- Utilize strategies from Sessions 2, 3, and 4
  - Conduct an onsite assessment and waste characterization
    - Evaluate production processes
  - Utilize source reduction techniques
  - Identify outlets for hard to manage waste streams
- Adjust focus based on results achieved

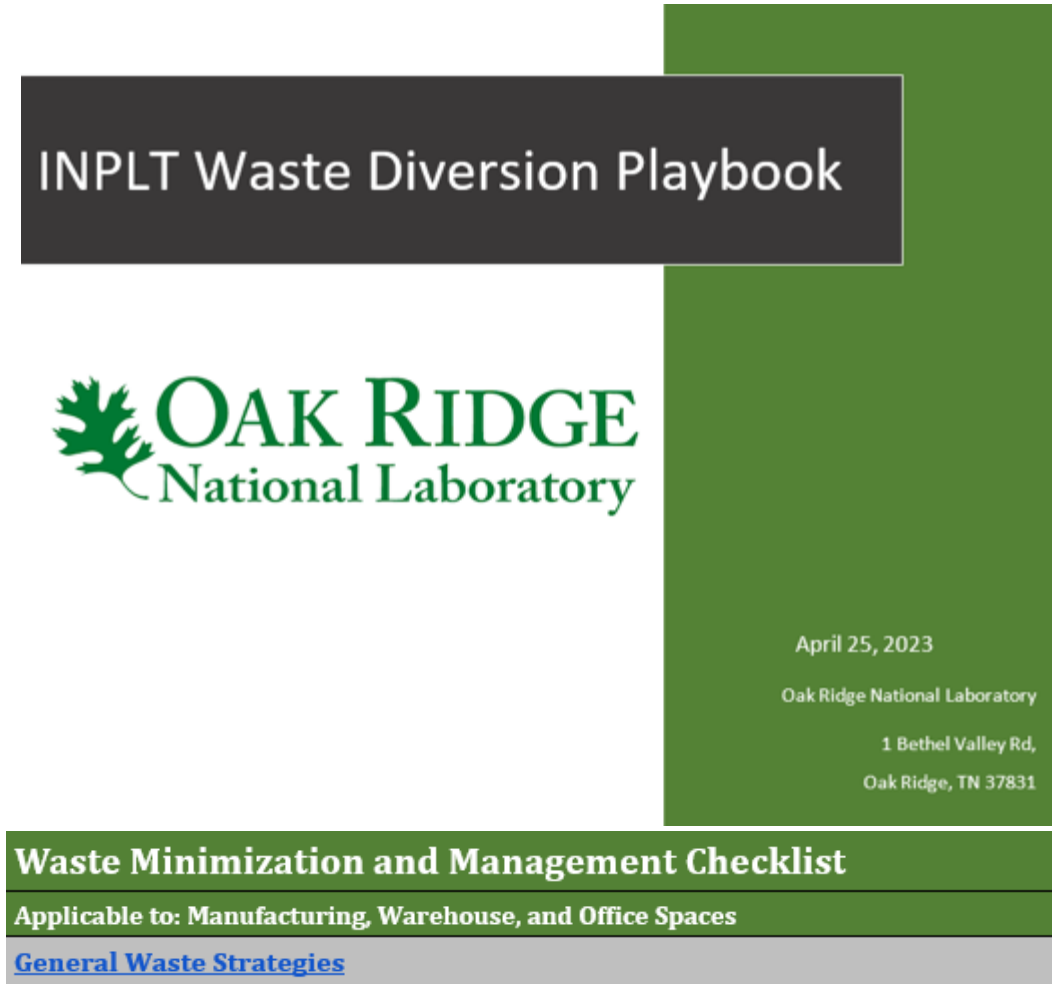
People Proofing

- Establish consistency onsite through clear:
  - Containers
    - Size, color, labeling, liner or no liner, and location
  - Signage
    - Are bilingual signs necessary?
    - Ensure signs are at eye level
  - Centralized waste collection areas
- Continually train and remind employees of waste handling procedures and expectations

Establish Policies and Procedures

- Create standard processes and procedures including:
  - Establishment of roles and responsibilities
  - Waste tracking and verification procedure
    - Identify which metrics are important
  - How to handle key waste streams
  - Methods for evaluating processes to identify opportunities for improvement
  - Strategies for waste minimization onsite

Establish Policies and Procedures



- Consider generating a waste diversion and minimization playbook
  - A document which would be made available to all assets of the company
  - Living document that would change over time
  - Include strategies and best practices for various areas
    - Manufacturing
    - Research and Development
    - Warehouses
    - Offices

Review Program

Engage in regular program review, including considerations such as:

- Which personnel were not involved that are needed?
- What data is not available but is necessary?
- What is the progress towards our goals?
  - Are there issues? What are they?
- What is the plan after the current project is complete?
- Will next year's focus be the same as this year?
- What has been the response to the changes?
  - Is production flow being interrupted?
  - Are employees disgruntled with the changes?
  - Are the results as good as anticipated?

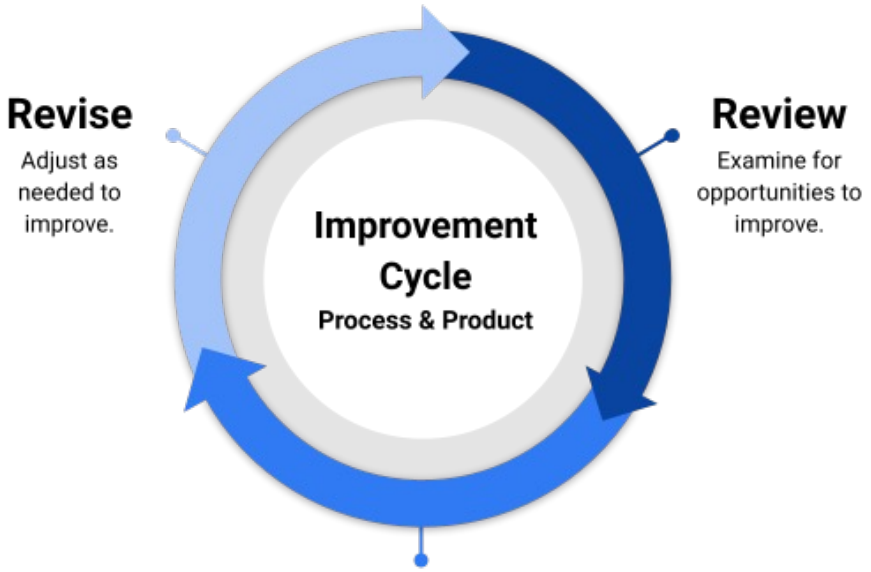


Image Source

Establishing a Zero Waste to Landfill Program

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Developing a Zero-Waste to Landfill Roadmap

Where to begin?

- Determine what your company currently does well and what it needs improvement on
- Start with establishing foundational steps
  - Data collection and analysis, site assessment, review of waste handling, segregation, and diversion, determining key personnel
  - Foundational steps will be very similar from site-to-site or company-to-company

Developing a Zero-Waste to Landfill Roadmap

Continue with site or company-specific needs

- Determine company/site-wide areas of improvement
  - Identify key steps in addressing areas in need of improvement
    - For example, if a site currently segregates waste well, but struggles to divert the waste, this will change the priority compared to a site that does not segregate waste well
    - The order of key steps will vary from site-to-site or company-to-company
- Ask critical questions regarding waste diversion
  - Is waste segregated enough to maximize diversion?
  - What are critical barriers limiting the ability to divert the waste streams?
  - What kinds of outlets exist for the waste materials generated?
  - Which processes or buildings result in the most waste?
  - Is there enough space or infrastructure to improve to the extent desired?

Zero-Waste to Landfill Roadmap Example

Track Waste Data and Material Efficiency

☑ Improve waste tracking
- Increase consistency and detail
- Improve verification process

Create a Green Team

☑ Empower employees to participate in waste diversion efforts
☑ Create clear organizational chart with defined responsibilities

Onsite Waste Diversion Evaluation

☑ Conduct an onsite review of current waste handling, sorting, and diversion
☑ Determine key areas of improvement

Process Evaluation

☑ Evaluate processes to determine improvements to reduce waste generated
☑ Install new equipment to reduce waste, where feasible

Waste Collection

☑ Evaluate buildings individually for divertible streams
☑ Establish collection for divertible materials
☑ Ensure appropriate bins are available for streams generated in an area

Waste Segregation

☑ Utilize contestant bin colors and sizes for waste streams
☑ Ensure clear labeling on waste containers
☑ Place bins in consistent locations

Recycling Program

☑ Contract with a waste hauler
☑ Segregate recyclable materials
☑ Purchase compactor for cardboard

Source Reduction

☑ Encourage employees to bring reusable containers
☑ Implement reusable/recyclable materials in lieu of single-use materials
☑ Purchase materials in bulk

Employee Training

☑ Communicate onsite changes with employees
☑ Establish expectations
☑ Be transparent with company goals and progress

Contractor Training

☑ Include waste diversion best practices and expectations
☑ Implement visuals of waste collections signage, bins, and collection areas
☑ Have contractors provide a list of anticipated waste streams ahead of arrival onsite

Waste to Energy

☑ Divert all remaining landfill waste through waste to energy

Certify as

ZERO WASTE TO LANDFILL!

Zero-Waste to Landfill Roadmap Example

Track Waste Data and Material Efficiency

☑ Enhance waste
- Increase consistency and detail
- Improve verification process

Create a Green Team

☑ Empower employees to participate in waste diversion efforts

☑ Create clear organizational chart with defined responsibilities

Onsite Waste Diversion Evaluation

☑ Conduct an onsite review of current waste handling, sorting, and diversion

☑ Determine key areas of improvement

Process Evaluation

☑ Evaluate processes to determine improvements to reduce waste generated

☑ Install new equipment to reduce waste, where feasible

Source Reduction

☑ Encourage employees to bring reusable containers

☑ Implement reusable/recyclable materials in lieu of single-use materials

☑ Purchase materials in bulk

Raw Material Reduction

☑ Implement measurable standard for use

☑ Utilize feed material for line restarts

☑ Increase quality checks to reduce reworking

Production Scrap

☑ Implement new conveyor with trays and higher guards along with segregated bins to capture production waste

☑ Implement a regrind/remelt system

☑ Send production scrap to another company for use in their product

Recycling Program

☑ Contract with new waste hauler

☑ Segregate recyclable materials

☑ Purchase compactor for cardboard

Employee Training

☑ Communicate onsite changes with employees

☑ Establish expectations

☑ Be transparent with company goals and progress

Contractor Training

☑ Include waste diversion best practices and expectations

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Waste to Energy

☑ Divert all remaining landfill waste through waste to energy

Certify as ZERO WASTE TO LANDFILL facility!

Question: What are some steps that would need to be included in your roadmap to zero-waste to landfill?

Please type your responses in the chat

We are looking for participants for Session 8!

- What is required:
  - Create a few slides following the template provided by SSC and ORNL
  - Speak about the slides during Session 8
    - If you cannot attend but would like your story told, SSC can present your slides for you
- Reach out to Nick by email or Lora in the chat to express interest or obtain more information

Greenwashing

Question: What does greenwashing mean to you or your company?

Please type your answer in the chat

What is Greenwashing?

- **Greenwashing:** a form of misinformation often used to entice a green consumer

- Types of greenwashing
  - Misleading labeling which lacks specific information
  - Use of general, non-specific terms such as “sustainable” which are not verifiable
  - Picking data to highlight green practices while hiding harmful ones
  - Unsubstantiated claims
    - Example: labeling a trash bag as recyclable

Identifying and Avoiding Greenwashing

- Marketers of green products typically offer specific and detailed information

- The Federal Trade Commission (FTC) offers guidelines to differentiate green from greenwashed products
  - Claims should specify what part of the product they pertain to; whether it be the product, packaging, or a portion of either
  - Claims should not overstate an environmental benefit intentionally or by implication
  - If a claim is made in reference to a competitor, the claim should be verified

Legislation Addressing Greenwashing

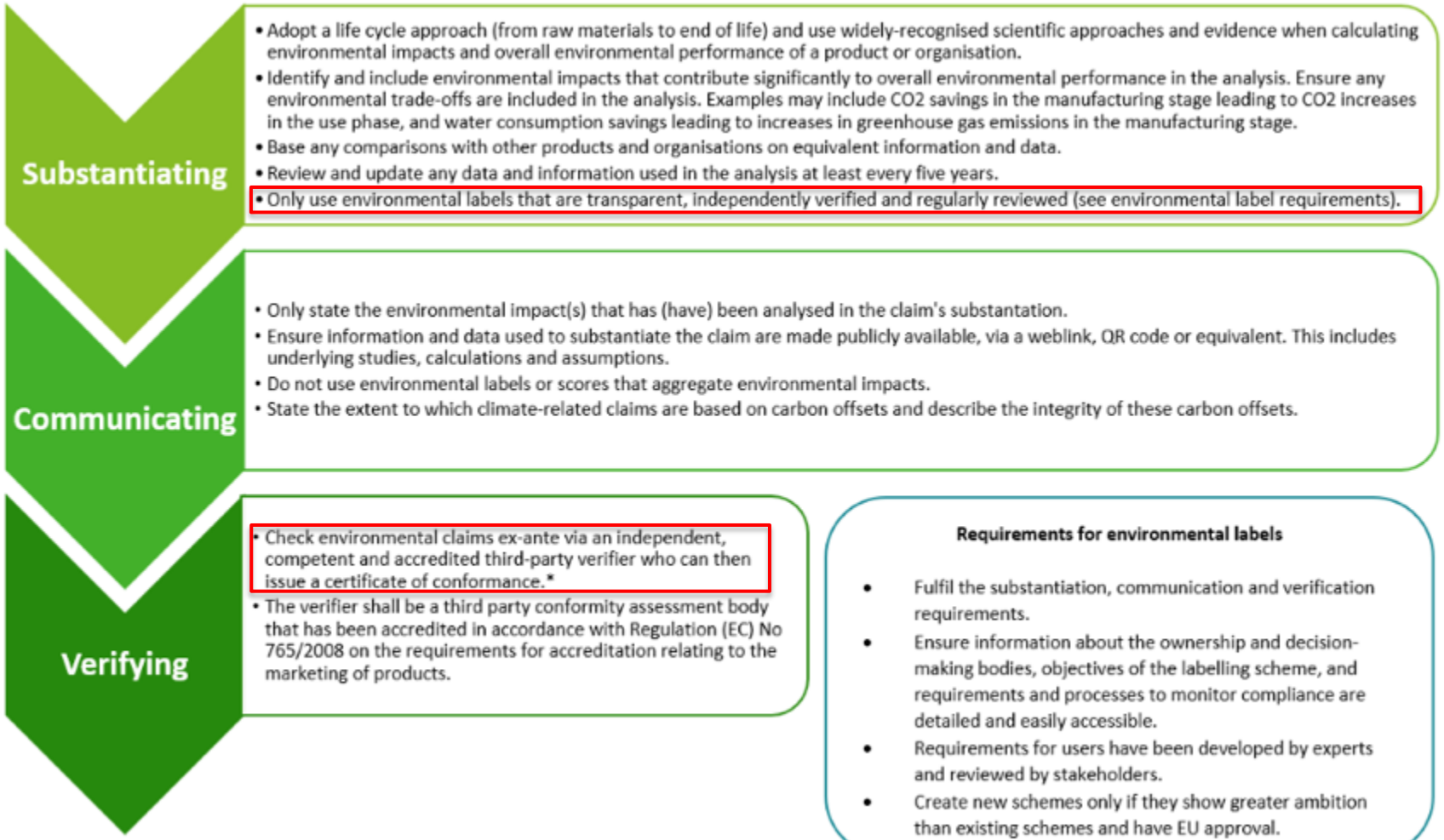
- Securities and Exchange Commission (SEC)
  - Created a climate and ESG enforcement task force to have oversight on ESG-related disclosures, investments, and compliance
  - Require climate-related disclosures in registration statements and reports
  - Proposed a rule that would require disclosure by funds which claim to take ESG factors into consideration when investing
  - Proposed a rule that funds with ESG terminology in their name must “invest at least 80% of their assets in accordance with the investment focus that the fund’s name suggests”
- California
  - Since 2012 has restricted the use of certain ESG terms on plastic products

Legislation Addressing Greenwashing

- EU Green Claims Directive
  - Proposed set of detailed rules regarding the marketing of company's environmental impacts and performance
    - Not yet in effect, estimated to take effect in the next few years
  - Rules would focus on voluntary claims and not mandatory
    - Mandatory claims would fall under already existing regulation
  - Directive is expected to apply to most companies including small and medium enterprises
    - Companies with less than ten employees or under €2 million in annual revenue would be exempt
  - Key notes:
    - Assessments regarding environmental claims need to consider life-cycle impacts of the product
    - Sustainability labels without third-party verification are prohibited

Legislation Addressing Greenwashing

Complying with EU Green Claims Directive

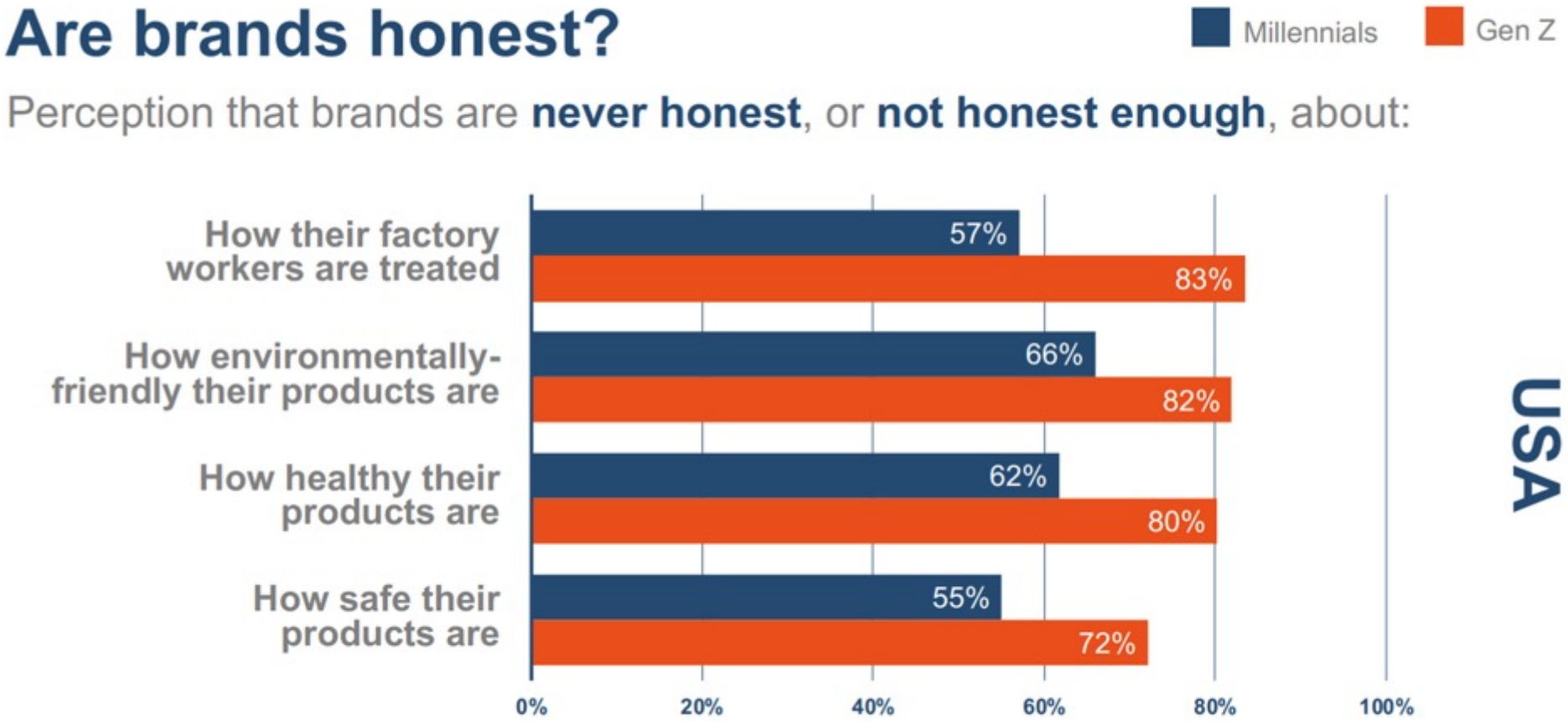


Deloitte Source

Greenwashing makes the marketplace hard to navigate, and makes consumers question brand integrity

FUTERRA

Are brands honest?



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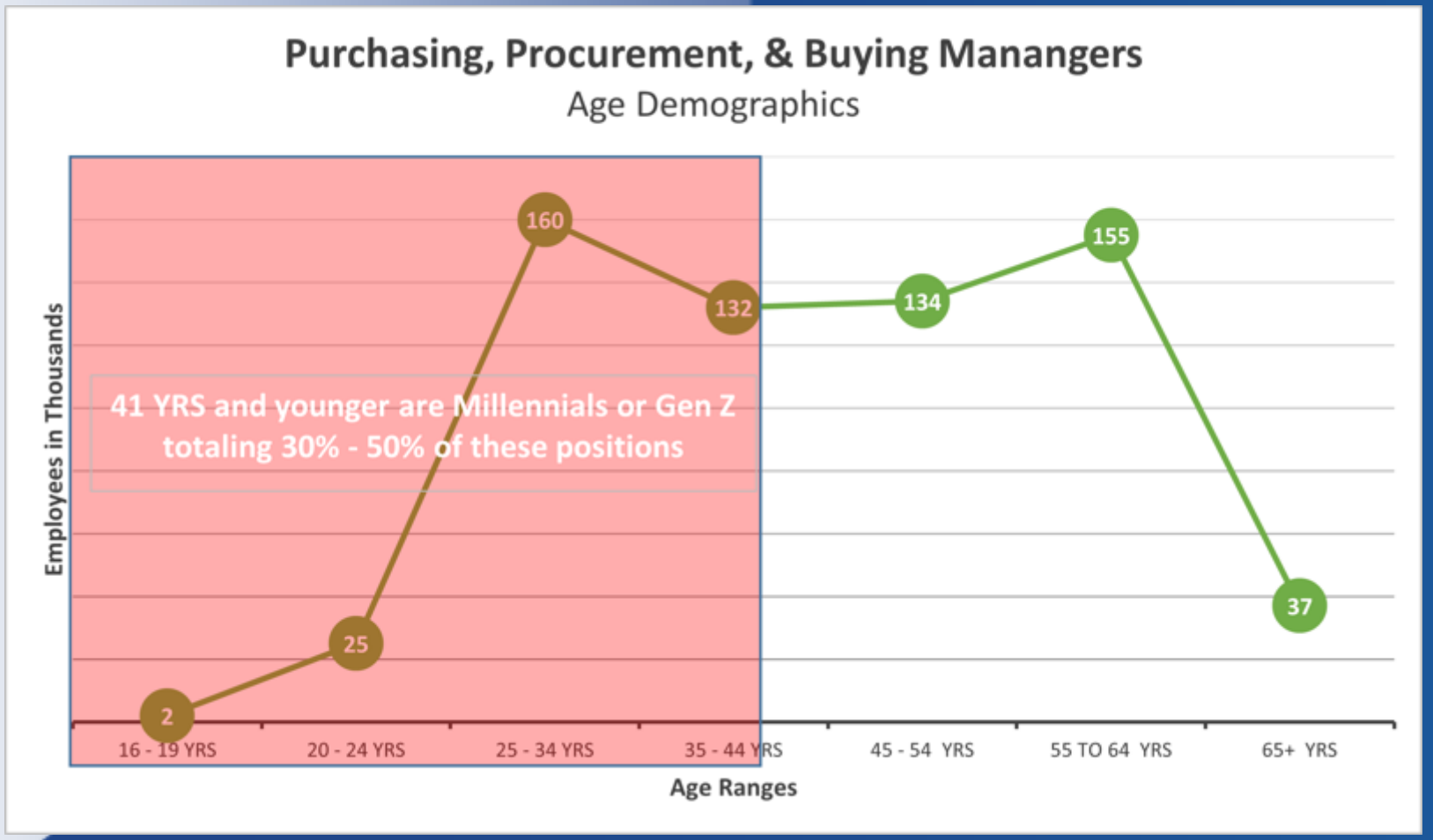
Source: Futerra consumer research, June 2019. Respondents: 615 consumers in US.



Age Demographics in Purchasing

- *2021*
- *U.S. Bureau of Labor Statistics*

www.bls.gov/cps/cpsaat11b.htm

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Question: What do you think brands can do to avoid greenwashing?

Please type your answer in the chat

Answer: Third-party verification

Third-Party Verification

Shelton Group Report

- September 30, 2020

- *Certifications matter more than ever, and brands should be promoting them*

- About **a quarter of Americans**, in fact, can name a brand – unaided – that **they've purchased or not purchased because of the environmental record of the manufacturer**. Which begs the question: how do they know a product is green?
  - **Eighty-seven percent of Americans say green certifications are important** when purchasing a product. So, certifications should be used as a way to validate a brand's green claims.
  - But it's not just about influencing purchases; **certifications build trust.**
    - Certifications on packaging/labels engender **more trust than a brand's advertising or press.**
- The moral of the story for brands is that you should **use third-party certifications** and once you're using them, you **should promote them and leverage their trustworthiness** to communicate your green product story. This starts on pack. Don't just put the third-party certification logo on your package, **tell the story of why it's there.**

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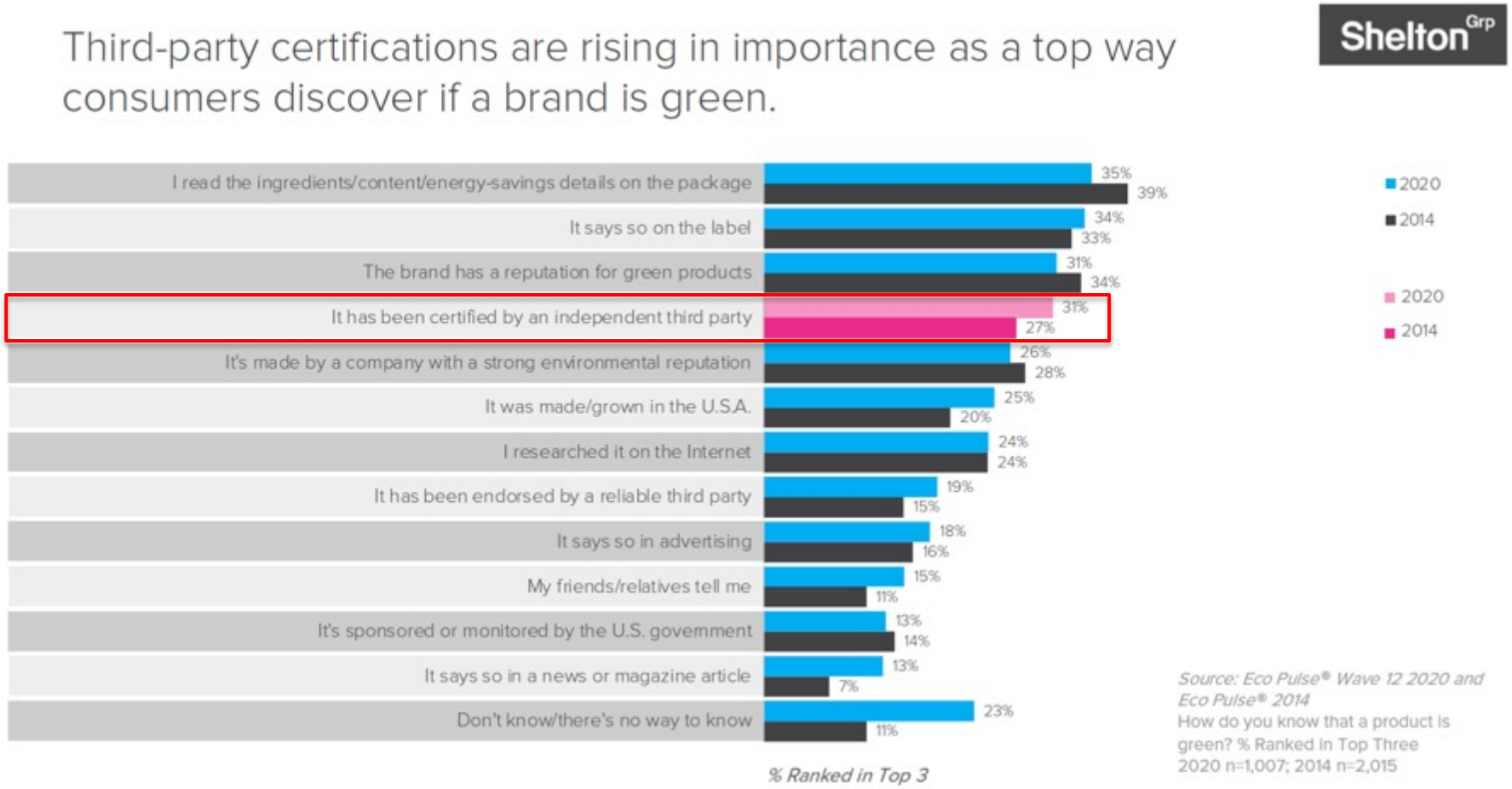
Importance of Third-Party Verification to Consumers



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Why Verify?

- Verification has several benefits including but not limited to:
  - Competitive advantage for marketing and sales efforts
  - Attractiveness to customers through transparency about sustainability efforts
  - Assisting to identify areas of improvement
  - Mitigation of risk towards greenwashing sanctions

Sustainable Procurement

- Companies are putting certain criteria into their procurement evaluation process, and this could include
  - Third-party certifications
  - Sustainability initiatives onsite

Waste Diversion Claims

- When stating a waste diversion claim, it is important to state what is included in the claim along with the verifying body.
- Example:
  - Company name verifies that Oak Ridge National Laboratory has diverted 75% of non-hazardous from landfill. This diversion rate does not account for hazardous materials which require specific treatment per federal regulations. Hazardous materials falling under this stipulation represent less than 2% of total waste handled onsite.
    - Note that certifications themselves may not disclose this amount of detail, but a company or site should consider disclosing relevant information

Third-Party Verifiers

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Third-Party Verifiers – Certification Comparison

Landfill Waste Diversion and Zero Waste to Landfill Environmental Claim Validation	TRUE Certification	Waste Diversion from Landfill and Zero Waste to Landfill Certification	SCS Zero Waste Certification	Landfill-Free Verification and e-Waste Recycling Certification

About UL Solutions

Empowers businesses to transform their environmental stewardship into true market leadership.

UL Solutions

- Services include testing, inspection, certification, and advising
- Offers certification of facilities, personnel, processes, products, and systems to applicable standards

UL Solutions Waste Diversion Certification

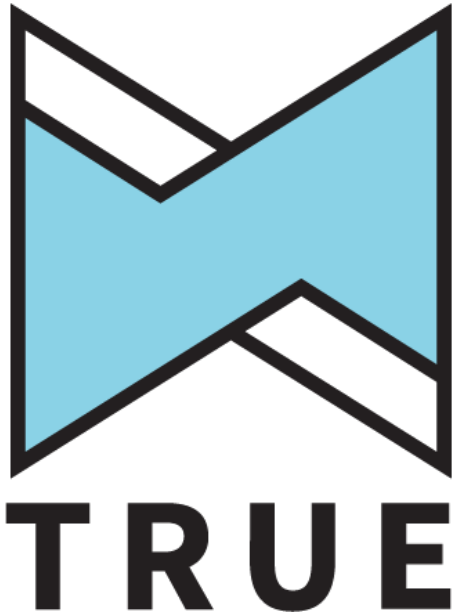
Landfill Waste Diversion Validation

- Four claim validations:
  - Energy production via incineration
  - Reuse
  - Recycling
  - Composting

Zero Waste to Landfill Environmental Claim Validation

- Certification level determined by percent diversion from landfill by methods other than waste to energy
  - **Silver** (90-94%)
  - **Gold** (95-99%)
  - **Platinum** (100%)
- Listed in UL's SPOT Sustainable Product Database

About TRUE



Used by facilities to define, pursue and achieve their zero waste goals, cutting their carbon footprint and supporting public health.

TRUE

- Administered by Green Business Certification Inc. (GBCI)
- **T**otal **R**esource **U**se and **E**fficiency zero-waste certification program
- Applies to physical facilities and operations

TRUE Certification

Certification Levels

Certified: 31-37 points	Silver: 38-45 points	Gold: 46-63 points	Platinum: 64-81 points

Overview of Categories & Points

Redesign	4	Leadership	6
Reduce	7	Training	8
Reuse	7	Zero Waste Analysis	5
Compost (Re-earth)	7	Upstream Management	4
Recycle	3	Hazardous Waste Prevention	5
Zero Waste Reporting	4	Closed Loop System	4
Diversion (Min 90%)	5	Innovation	3
Zero Waste Purchasing	9	**Total Points**	**81**

August 2021 TRUE Guide to Certification

- Certification level determined by rating system
- Requires 90% diversion from landfill for minimum certification
- Valid for three years

About GreenCircle Certified (GCC)

Established to be a credible, scientifically based third-party certification body.

GreenCircleCertified

- Created after repeatedly finding products labeled with false and misleading environmental claims
- Certifications of products and operations
- Offers marketing and education support

GCC Waste Diversion Certifications

- Waste Diversion from Landfill and Zero Waste to Landfill Certifications
- Only up to 2% of total waste can be residual that is sent to landfill or incineration
  - 98% diversion required for zero-waste to landfill certification
- Process requirements include:
  - Site visit to facility and local waste management organizations
  - Communication with every waste outlet

About SCS Global

Strives to advance sustainable development goals through independent assessment, the application of sound science, and innovative solutions.

SCS Global Services

- Services include certification, training, and consulting
- Industries include natural resources, built environment, food and agriculture, consumer products and climate

SCS Zero Waste Program

- 50% diversion to be qualified for Zero Waste program
- Must meet 99% diversion to be certified as Zero Waste
  - Review of company program documents such as a zero-waste plan, trainings, invoices, etc.
  - Conducts onsite/virtual audit
- Offers additional certifications for projects and events

About NSF

Supports sustainability strategies, allowing businesses to open new opportunities, pursue efficiency gains, save money and attract and retain employees, customers and investors.

NSF

- Services include standards development, testing, certification, consulting, and training
- Develops public health and sustainability assessment standards

NSF Waste Diversion Verification

Landfill-Free Verification

- Less than 1% of waste to landfill
- Process requirements include:
  - Program for electronic waste management
  - Facility audits
  - Retaining documentation
  - Tracking waste streams
  - Employee training

e-Waste Recycling Certification

- Safer recycling and disposal of electronic waste
- Offers three certificate types:
  - **Responsible Recycling**: principles and practices for electronics equipment
  - **Recycling Industry Operating Standard:** recycling management system
  - **e-Stewards Certification:** performance requirements for electronics recycling

Comparison of Zero-Waste Certifications

	UL Solutions	TRUE	GCC	SCS Global	NSF
Certification Levels	Silver, Gold, Platinum	Certified, Silver, Gold, Platinum	Zero Waste	Zero Waste	Landfill-Free Verification
Determined By	Percent diversion	Rating system	Percent diversion	Percent diversion	Percent diversion
Percent Diversion for Minimum Zero Waste Certification	90%	90%	98%	99%	99%

Closing Remarks

Closing Remarks

- Summary
  - Overview of the necessary steps for implementing a waste diversion program
  - How to prioritize waste reduction opportunities
  - How to develop a zero-waste to landfill program
  - Why third-party verification is important
- Homework!
- Next training:
  - Conclusions, Summaries, and Wrap up Presentations
  - May 2, 2023

Homework Overview

- Homework will:
  - Engage participants in the topics to be discussed in the following session
  - Serve as a guide for waste diversion and minimization
- If a homework is completed, please send to presenter, Nick, at nick@sustainablesolutionscorporation.com
  - Please use the subject “Better Plants Session # Homework: Complete – Company Name”
  - Participants will be asked to share their learnings and experiences in session 8, and if you would like to participate in this, please reach out to Nick

Homework Review

Assignment

1. After learning about developing a roadmap to zero waste to landfill, are there any steps that stand out as areas of necessary improvement for your site and/or company? If so, what are they?
2. What kinds of actions items need to take place to achieve the steps identified in Question 1?
3. For the action items identified in Question 2, what parties need to be involved to fulfill them? Align necessary parties with action items and steps to zero waste to landfill.
4. Does your company have a Green Team or similar? If not, what individuals would likely need to be included to make one? If there already is a team, what facility roles are included on the team?

Goal

- For a participant to identify future steps for improving waste minimization and diversion.
- To have a participant begin to think about which individuals or groups will need to be involved in future efforts.

Kahoot!

Quiz link:

Q&A