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Introduction

The **global climate crisis** is nearing irreversible tipping points

- Global goal: Avoid 1.5°C warming by 2040
- 2030 Target: decrease anthropogenic (human-caused) emissions 45% from 2010 levels
- 2050 Target: reach net-zero carbon emissions
- Challenge: Standardize emission accounting practices
- Incomplete, unspecific accounting guidance can result in significant Scope 3 reporting variances, in one instance: -1500% (Frago et al., 2022)

The **US solid waste and resource recovery** industry

- Most companies report Scope 1 and Scope 2 emissions
- Only 5 of the 45 top companies report Scope 3 emissions
- Those reported Scope 3 emissions total 5.6M MTCO₂e

What are Scope 3 emissions?

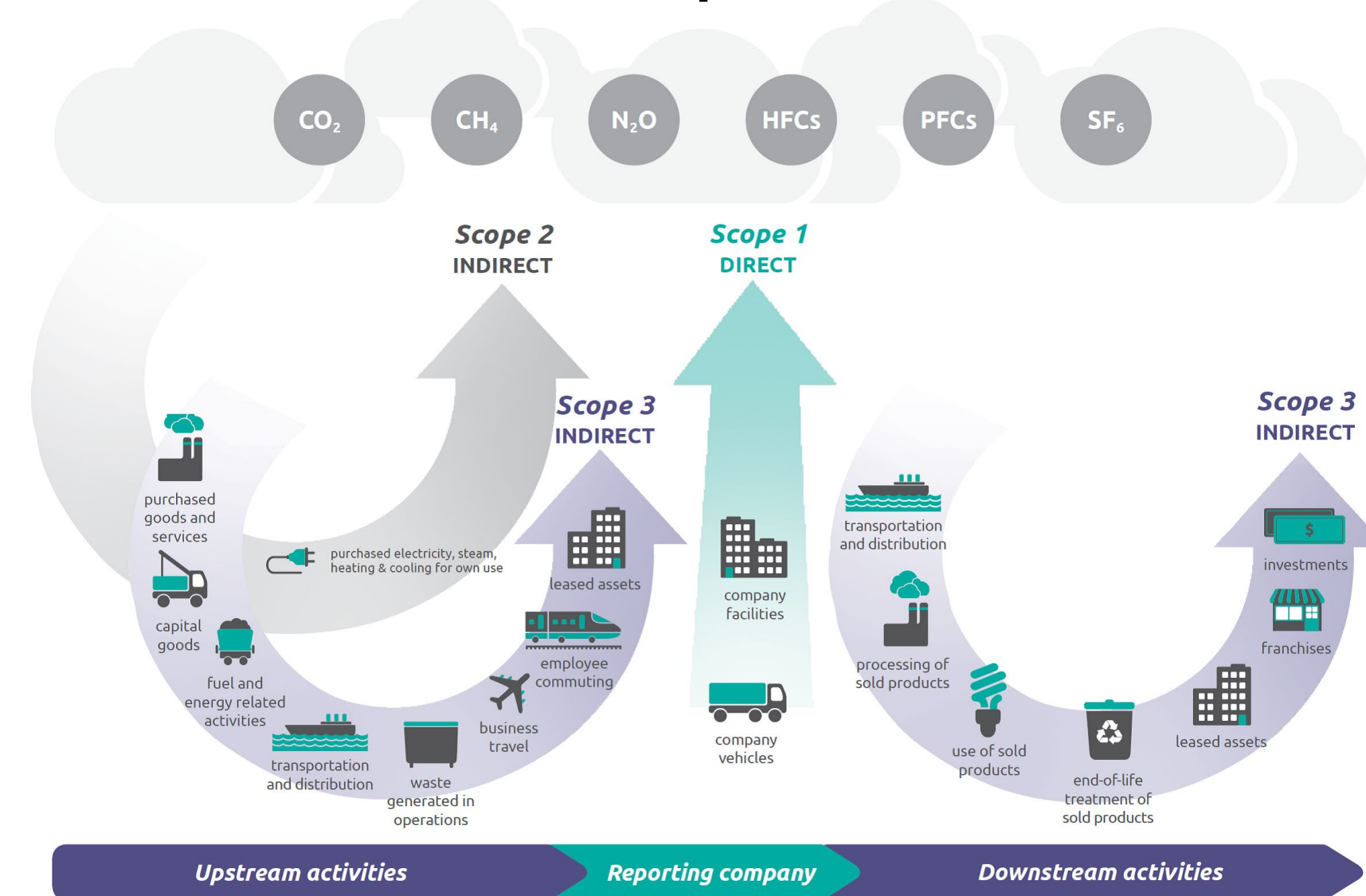


FIGURE 1: Scope 1, 2, and 3 Emissions | The GHG Protocol (Bhatia et al., 2011)

Methods

- 1 Review existing guidance** and methodologies
 - The GHG Protocol
 - The Climate Registry
 - CDP Guidance
- 2 Conduct market research** of existing Scope 3 inventories. Identify **material categories** for the waste industry.
- 3 Synthesize** to create a **Scope 3 accounting playbook** for the US waste industry

Considerations

Project scope does not include reviewing or compiling any individual company's private data.

- Future Considerations and Recommendations:
- Communications partnerships to encourage industry adoption
 - Analysis and design of climate-justice centered supplier engagement strategies for the waste industry

Analysis and Discussion

Analysis of Existing Greenhouse Gas Inventories

CY2022 disclosures | Covanta, GFL Environmental, Republic Services, Waste Connections, Waste Management (N=5)

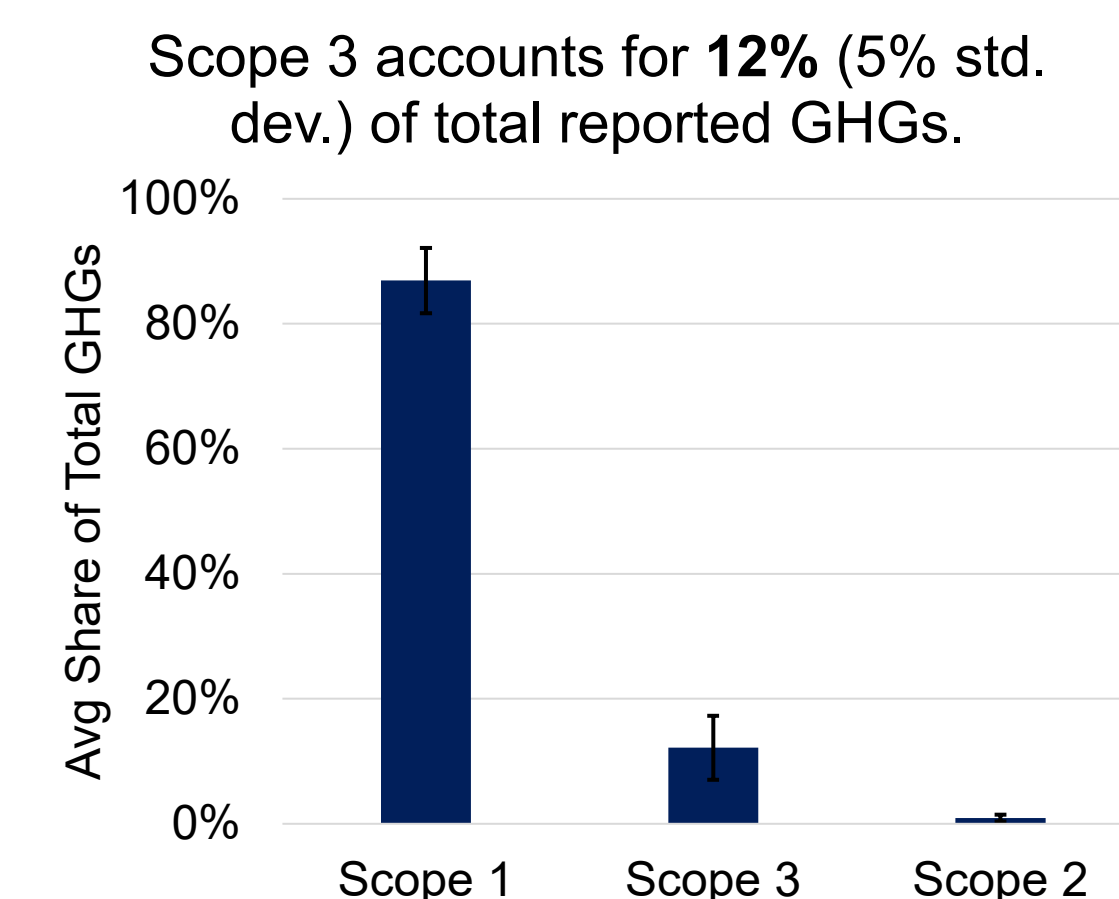


FIGURE 2: An analysis of the share of Scope 1, 2, and 3 emissions reveals that Scope 1 sources are by far the largest contributors of GHGs from the waste industry.

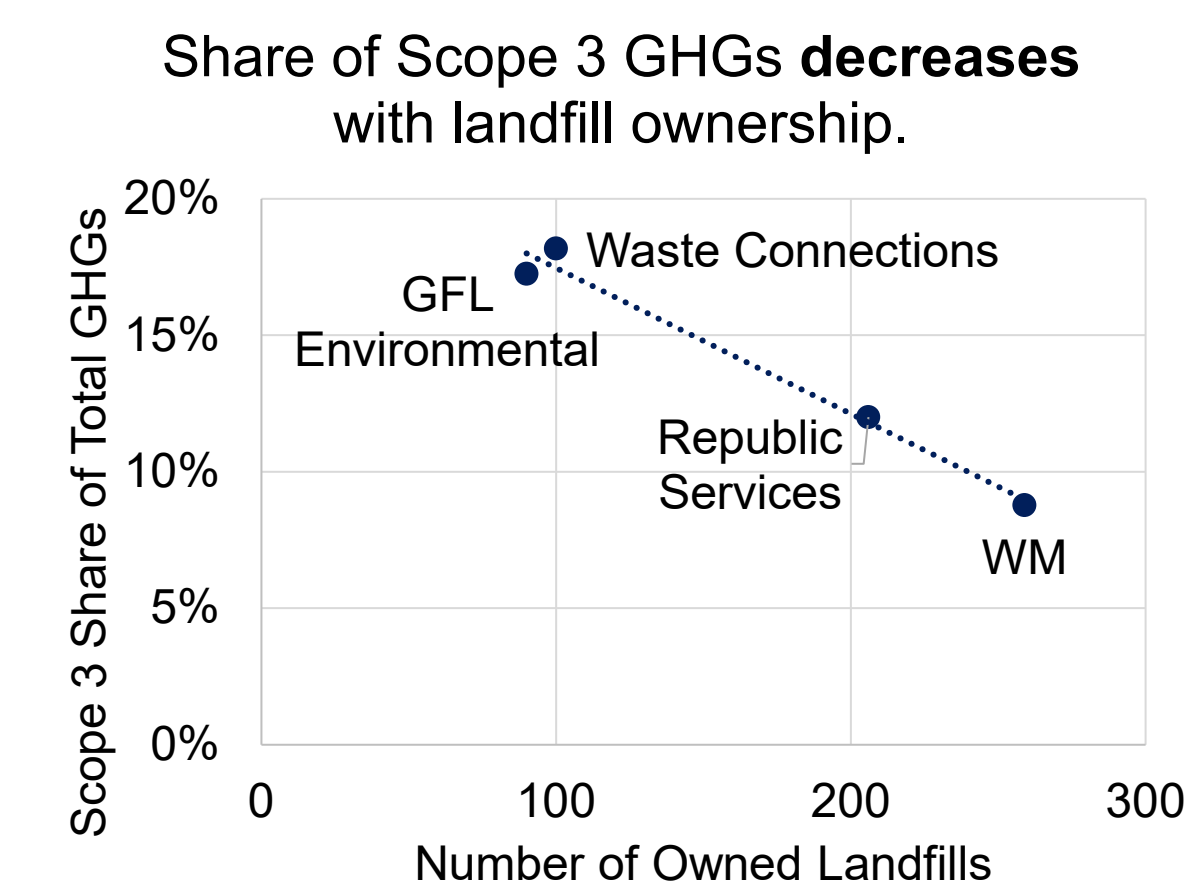


FIGURE 3: An analysis of the share of Scope 3 emissions against landfill ownership reveals that companies with fewer landfills – sources of Scope 1 emissions – have a larger share of Scope 3 GHGs.

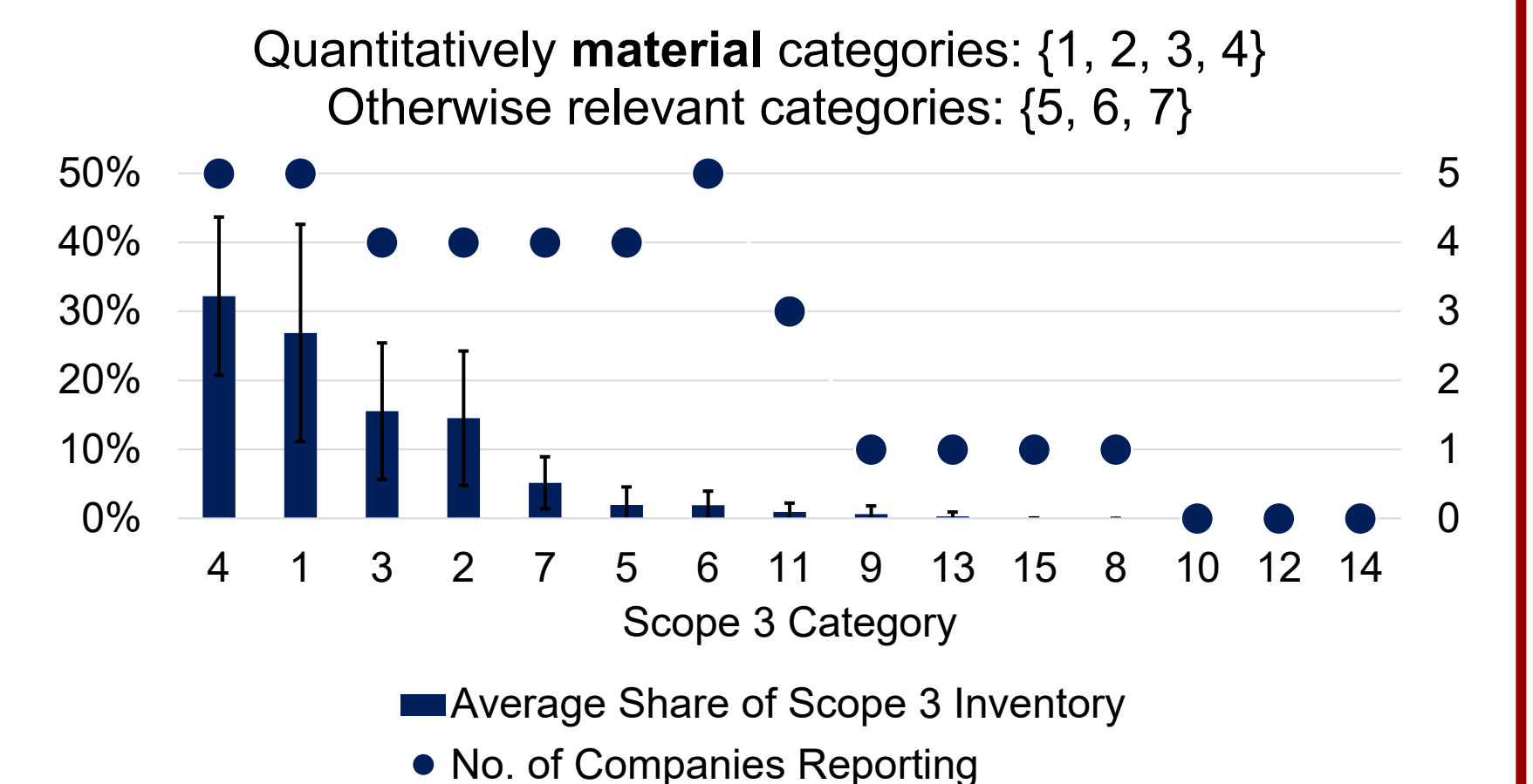


FIGURE 4: An analysis of the contribution of each category to the Scope 3 inventory reveals consensus on material categories by quantitative GHG contribution {1, 2, 3, 4} as well as other reasons for reporting relevancy, including data availability and mitigation potential {5, 6, 7}.

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Conclusion

- **Near-term: Scope 1 reductions must be prioritized**
- Near-term: Scope 3 monitoring should be implemented immediately and matured over time
- As Scope 3 emissions near 40% of combined GHG inventory, Scope 3 reduction strategies should be implemented
- Benefit to the planet:
 - ✓ Progress towards a **less polluting** value chain
- Benefits to industry:
 - ✓ A **common language** to redesign an efficient value chain
 - ✓ Rebrand industry: *notorious polluters* → *climate leaders*
- Benefits to companies:
 - ✓ Meet and exceed sustainability **goals**
 - ✓ Explore green business development **opportunities**
 - ✓ Maintain **resiliency** against climate, financial, & legal risk