

# Packaging Waste: Challenges and Opportunities

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September 21<sup>st</sup>, 2022

Cummins Proprietary

# Powering a more prosperous world

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**190** Countries and territories\*

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**59,900** Global employees

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**103** Years of industry leadership

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**10,600** Cummins certified dealer locations

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**\$1.1B** Invested in research and technology in 2021

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*\* Approximation of countries and territories with Cummins service  
As published in the 2021 10K found on cummins.com.*



“...we believe that our survival in **the very long run** is as dependent upon responsible citizenship in our communities and in the society as it is in responsible technological, financial and production performance.”

**J. Irwin Miller**  
Former Chairman and CEO, 1972

# 50 years apart, consistent commitment

“Climate change is the existential crisis of our time, and we must act **today** to solve it.”

**Jennifer Rumsey**  
Chief Executive Officer, 2022





# CUMMINS' 2050 ASPIRATIONAL TARGETS

## COMMUNITIES ARE BETTER BECAUSE WE ARE THERE

### 2050 TARGETS:

- Net positive impact in every community where Cummins operates.
- Near zero local site environmental footprint.

## DOING OUR PART TO ADDRESS CLIMATE CHANGE AND AIR EMISSIONS

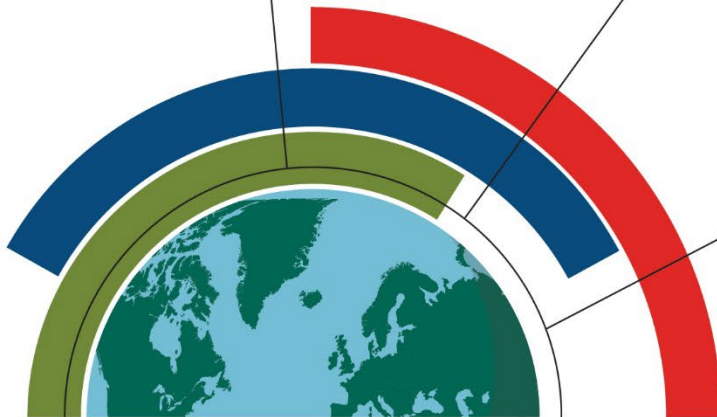
### 2050 TARGETS:

- Customer success is powered by carbon neutral technologies that address air quality.
- Carbon neutrality and near zero pollution in Cummins' facilities and operations.

## USING NATURAL RESOURCES IN THE MOST SUSTAINABLE WAY

### 2050 TARGETS:

- Design out waste in products and processes
- Use materials again for next life
- Reuse water and return clean to the community



NOTE: Company facilities include all consolidated operations and joint ventures that are part of the Cummins Enterprise Environmental Management System. The company's strategy also includes addressing environmental needs in communities where Cummins employees live and work and where the company does business. Those goals are under development.

# NINE 2030 GOALS

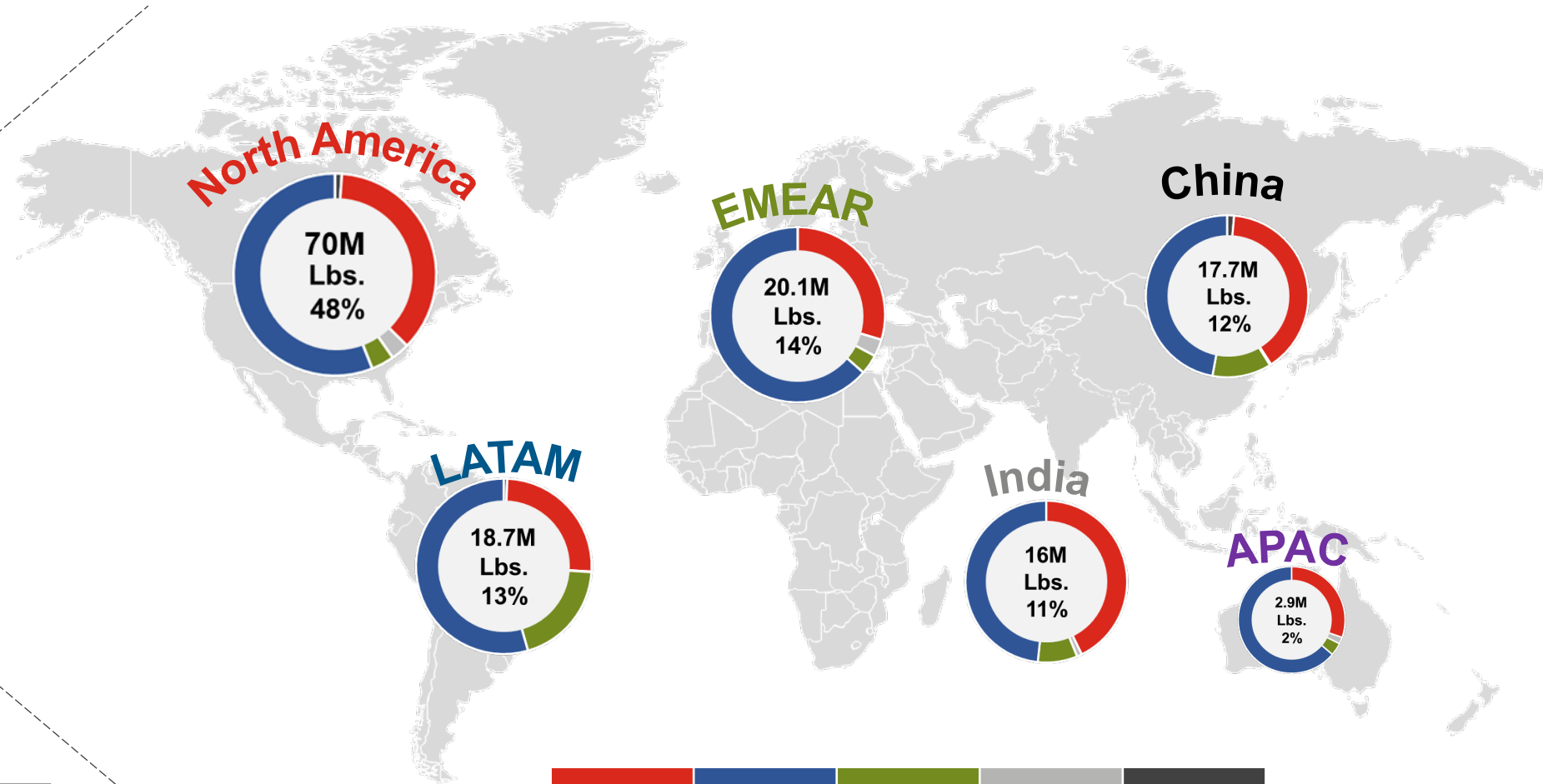
## SCIENCE-BASED TARGETS

- Reduce absolute greenhouse gas (GHG) emissions from facilities and operations by 50%.
- Reduce scope 3 absolute lifetime GHG emissions from newly sold products by 25%.
- Partner with customers to reduce scope 3 GHG emissions from products in the field by 55 million metric tons.
- Reduce volatile organic compounds emissions from paint and coating operations by 50%.

## CIRCULAR ECONOMY

- Create a circular life-cycle plan for every part to use less, use better, use again.
- Generate 25% less waste in facilities and operations as a percent of revenue.
- Reuse or responsibly recycle 100% of packaging plastics and eliminate single-use plastics in dining facilities, at employee events and as amenities.
- Reduce absolute water consumption in facilities and operations by 30%.
- Produce net water benefits that exceed Cummins' annual water use in all Cummins regions.

# Cummins 2021 Packaging Footprint



Goals	
Boundary	Operational control + Fully dedicated 3PLs
In-Scope	All day-to-day operational waste streams.

# Reduce 30% of Packaging Waste by 2030



**145M Lbs.**

of Packaging waste generated in 2021

## Key Packaging Principles:

### Material Content Selection

- Partner with suppliers on design and material selection.

### Waste Reduction

- Design to minimize waste
- Expendable to returnable

### Supply Chain Optimized

- Global portfolio approach to prioritize biggest opportunities

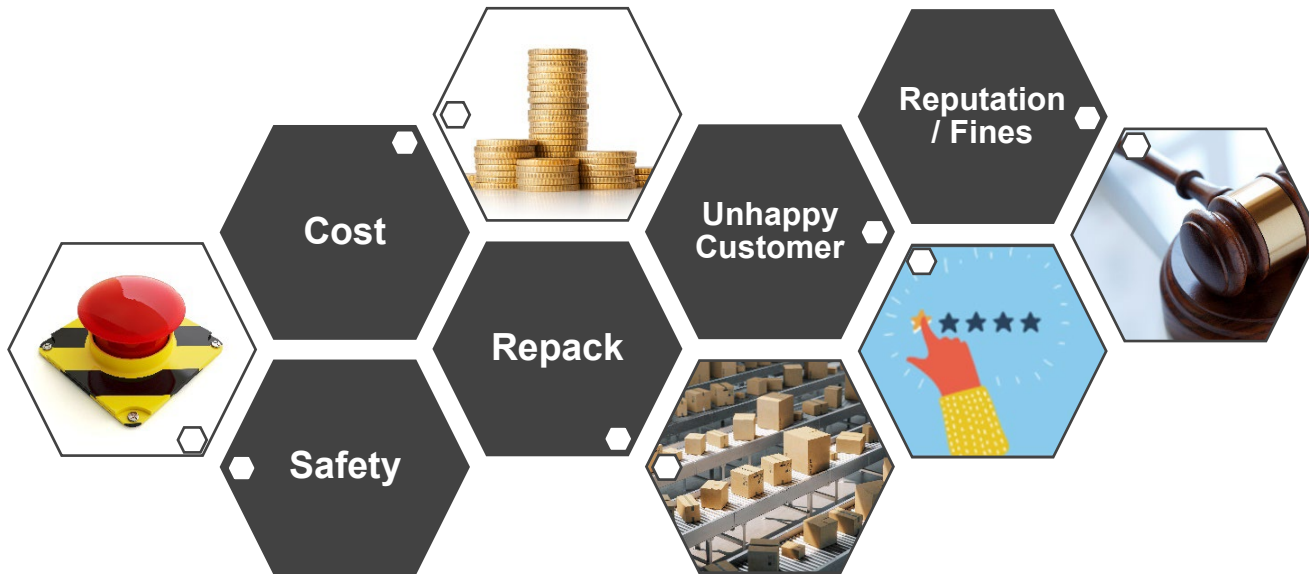
### Plastics

- Eliminate problematic plastics
- Increase recyclable content

**Compliance is always a must.**

# Risks of Poor Packaging

What are the risks if **packaging** is not designed and managed correctly?



There is a common concern that increasing sustainability will add packaging costs...

**This is not necessarily the case.**

In fact, if done properly, employing good sustainable practices result in reduced expenses.

- Reduced materials,
- increased packaging densities and
- reusable or returnable systems



# Elimination of problematic Packaging

## SCOPE AND DETAILS

Eliminated hard to recycle foam packaging

Replaced internal dunnage of Instapack foam to corrugated cardboard

Supports our goal of eliminating problematic plastic wastes

- Eliminated 6.9 tons of non-recyclable foam
- Replaced with 30.6 tons of corrugated that is a recyclable commodity

Improved Safety:

- Eliminated risks associated with transportation, handling, storage and disposal of hazardous waste.





# Packaging Optimization

## SCOPE AND DETAILS

Developed a standardized universal skid design that can be used across multiple product ranges as compared to product specific skid designs

- Maximize asset utilization
- Flexibility
- Reduce lead times for skid redesign

## BENEFITS

- 35% Capital cost savings;
- Reduction in Engine packaging proliferation;
- Reduce packaging material waste for Cummins and Customer;
- Provide flexibility for changes in product and business needs;
- Reduce packaging lead times

**6,709,972 lbs. of waste saved for Cummins and our customers**

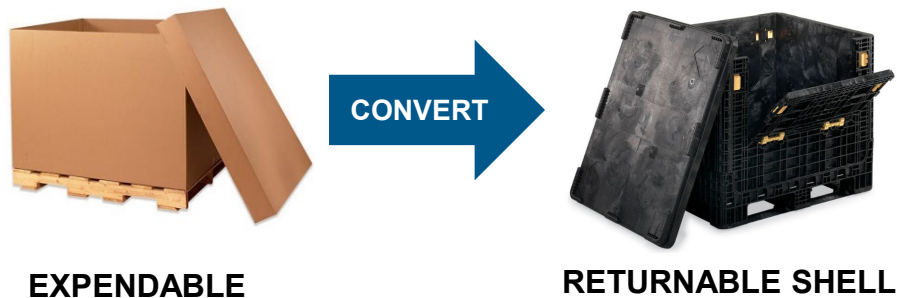


# Replacing Expendable with Returnable

Default packaging for many is “expendable”

Typical expendable packaging includes wood skids, corrugated paper boxes, and plastic bags.

Replacing part or all the expendable packaging with returnable allows us to reduce waste, reduce piece price of components, and provide a stronger, more handleable pack.



## Technology

- Passive RFID
- Autonomous scanning, no manual intervention
- >95% Accuracy

## Critical Elements to be successful:

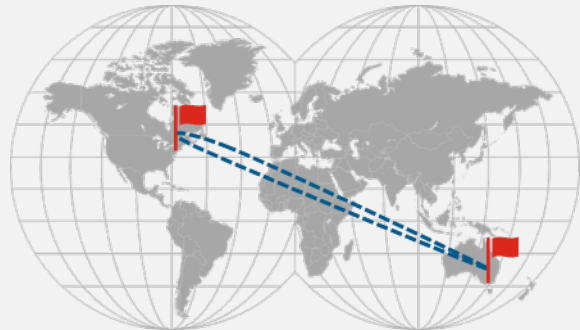
1. Tracking, Tracing, IT solutions
2. Standard designs, pooling, logistics/reverse
3. Warehousing safety, Staging/Space requirements
4. Asset Management (demand planning, balancing, repair/refurbish/cleaning),
5. Engineering Material Flows

# Life Cycle Analysis for Return and Reuse

## SCOPE AND DETAILS

Return and reuse engine skids that are sent between Jamestown, NY and Scoresby Australia.

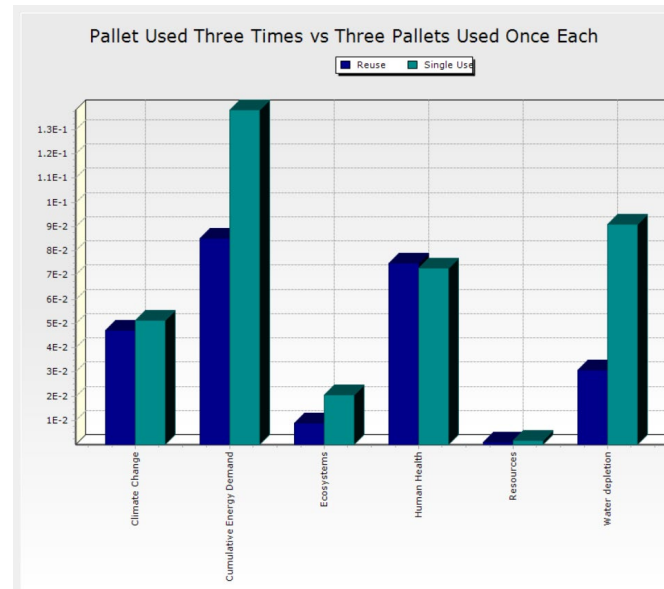
- Target 3 cycles (US to AU X 3)



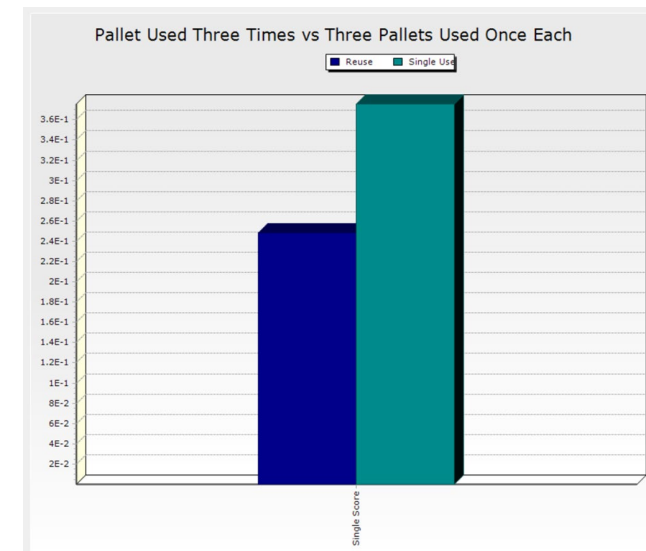
> \$300k saved



276 tons saved



Indicator	Reuse	Single Use
Single Score	2.479718E-001	3.755699E-001

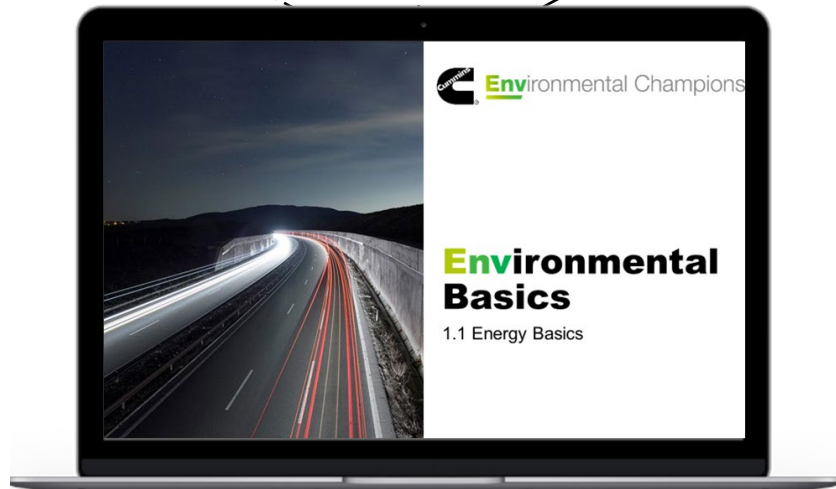


# Other Keys to Success

## People and Programs



210 employees virtually trained in 2021



Environmental Champions

June Environment Month



## Tools and Processes



Identify significant waste



Project Identification



Engage with Workforce

