

A nighttime photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated against a dark blue sky. The lights from the buildings reflect on the water in the foreground. A dark blue rectangular overlay covers the middle portion of the image, containing white and yellow text.

CII - National Award for Environment Best Practices 2025

Reducing Footprint, Increasing Value: The Shift from Wooden to Metal Pallets: Insights from Sustainability Perspective

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Who is Eaton?

We are an **intelligent power management** company doing business in more than **160 countries** with annual sales of over **\$24.9 billion USD**.

ELECTRICAL



Power distribution
and circuit
protection



Power quality,
backup power and
energy storage



Life safety and
security



Structural
solutions



Control and
automation



Harsh
and hazardous
environments solutions

INDUSTRIAL



Aerospace



Filtration



Vehicle



eMobility

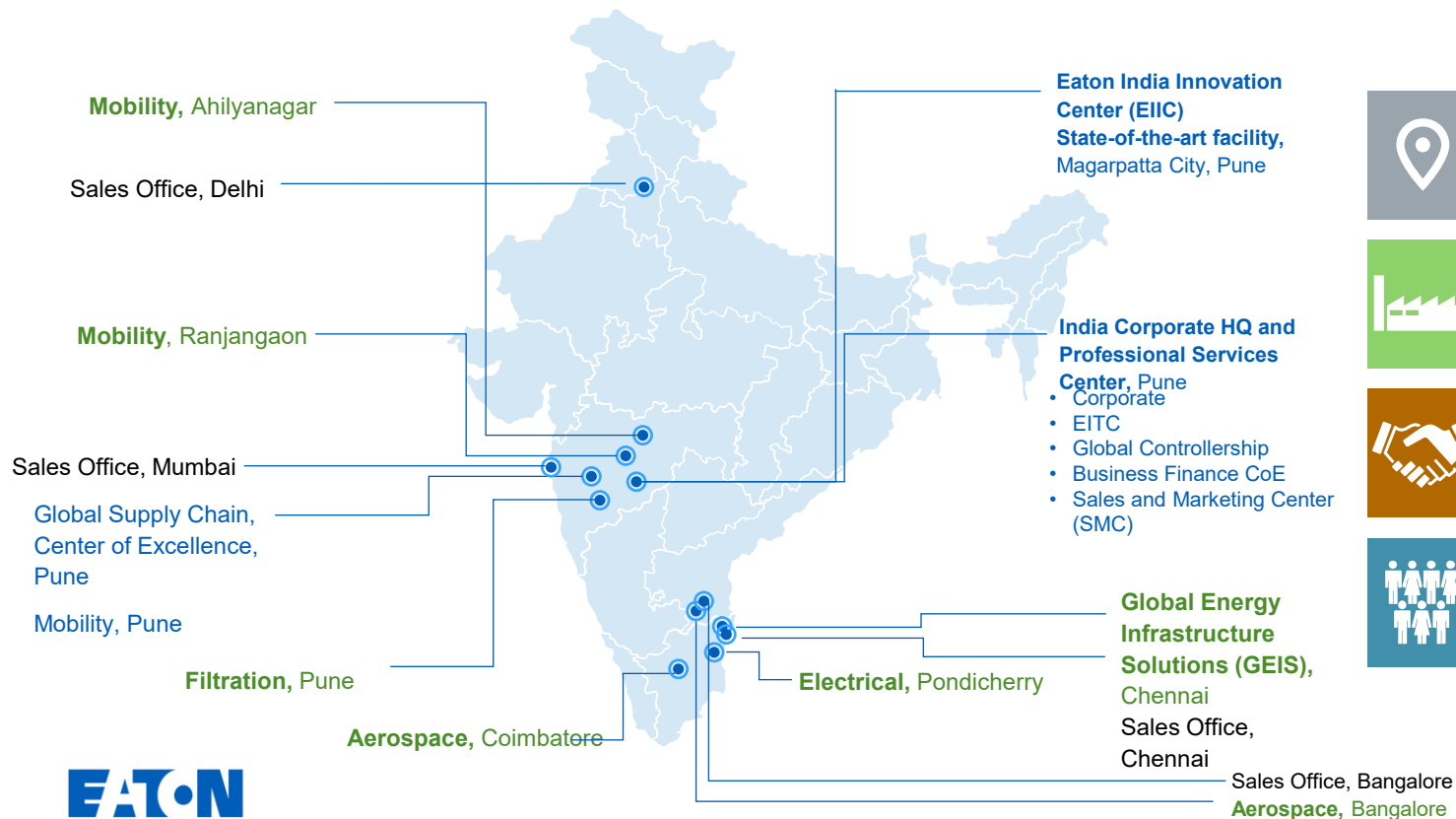
Building more efficient, sustainable power management solutions.



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Eaton's Presence in India



20

Locations



7

Manufacturing sites



450

Channel partners



6300+

Employees (approx.)



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Pallet Substitution: Journey from Problem to Solution

Before: Wooden Pallet for Transmissions Shipment



Customer Dissatisfaction

- Disposal costs
- Insurance claims

Trigger

- Pallet and product damage during shipment

Operational Issues

- Bulky & heavy to store/handle
- Moisture/Rain vulnerability
- Needs fumigation (fungal)

After: Recycled Steel Pallet Solution



- Recycled steel – low env. impact & recyclable or reuseable
- Higher structural strength & 50% Lighter
- Improved stacking
- Weather & fungal resistance

Implemented solution is validated and approved by customer

Challenges Faced and Major Learnings

Design



- ❖ Structural Integrity
- ❖ Material Selection
- ❖ Ergonomics and Safety
- ❖ Weight Optimization
- ❖ Stacking Efficiency and Durability

Manufacturing



- ❖ Prototyping and Validation
- ❖ Production Scalability
- ❖ Supplier Alignment
- ❖ Quality and Cost Control

Operational



- ❖ Customer Acceptance
- ❖ Stacking and Container Loading
- ❖ Hygiene and Contamination Control
- ❖ Reverse Logistic Feasibility

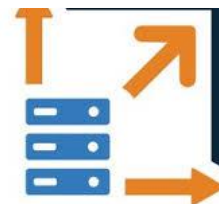
Key Learnings



Sustainability Integration



Validation and Impact



Scalability and Deployment



Cross-functional Collaboration



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Uniqueness and Replication Potential



Uniqueness of the Project

Cost effective recyclable solution where returnable dunnage not possible

- Packaging as an integral process
 - Lifecycle approach (acquisition to disposal)
 - Optimization at the core (Process & Materials)
 - Customer-Centric solution
 - Holistic Impact: Dual wins - environmental and economic
- Packaging Reimagined: Moved beyond “just add weight”—engineered for reliability



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Replication Potential

Scalable across Eaton sites

Applicable to heavy components

Cross sector applicability : Adoptable by automotive, pharma, FMCG

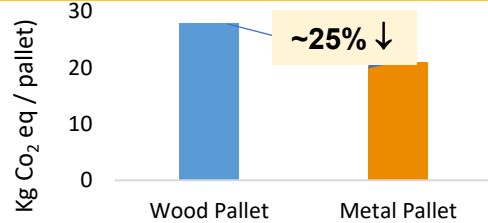
Scalability across supply chains: OEMs, Tier-1 suppliers, and warehousing networks

Standardizable in packaging protocols

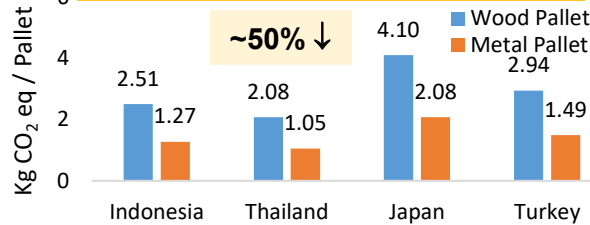
Environmental Impacts Assessed through Life Cycle Assessment (LCA)

Environmental Impacts for One Pallet

Materials & Manufacturing

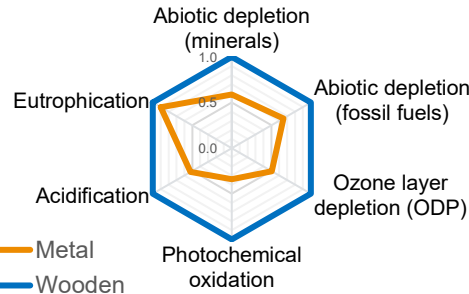


Transportation



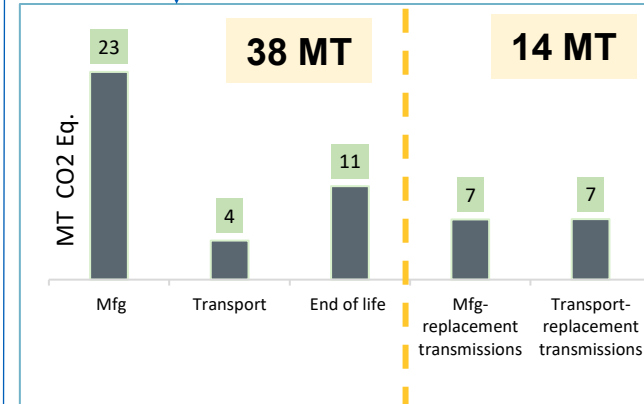
Insight: Reduced Environmental Impacts in All Life Cycle Phases

Drivers: Optimized design | Recycled Steel | Light Weight



Annual GHG Reductions

1 Life Cycle GHG Savings: Pallet mat & mfg, transport, disposal



2 Additional "Avoidances": Manufacture & shipping of replacement product

LCA helps to quantify and validate using a holistic lens!

National benchmarks/Standards

- **National Standards: Extended Producer Responsibility (EPR)** *by reducing wood waste and promoting circular economy practices.*
- **International Standards: ISO 14001 (Environmental Management Systems) and ISO 9001 (Quality Management Systems)** *through improved product safety, reduced contamination, and enhanced logistics efficiency*
- **ESG Frameworks & Sustainability Goals: SBTi, CSRD, ESRS, GRI** *through quantified actions towards Scope 3 emissions reductions & contribution to Science based Targets*

Alignment with UNSDG Goals



Project supports the organization's alignment with key **sustainability and quality standards** by integrating environmentally responsible practices into packaging and logistics.

Impact Highlights: Tangible & Intangible Benefits

Tangible Benefits

Lower “Life Cycle Cost”

Materials cost (~ 20%)

Transport cost (~15 – 30% higher shipping container utilization)

Disposal cost avoided*

~ 20% life cycle cost reduction*



Lower GHG Impacts

Materials – 61 %

Transport – 11%

End of life - 28%

34 MT CO₂ eq. annually

Additional avoided emissions

Materials

Transport

14 MT CO₂ eq. annually

from replacement product avoidance

**Disposal benefits are not yet quantified*

**Life cycle costs/benefits are incurred by various actors in the value chain*



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Intangible Benefits

Operations

- Wall-less design – access & visibility
- Fumigation eliminated
- Lighter



Safer & Lighter

Ergonomic handling

Faster Loading

Culture & Brand

Customer trust & partnership

Fostered cross-team collaboration

Aligned to Sustainability Goals

In Summary: Improved sustainability & economic benefits

~ 53 MT CO₂ eq. net GHG Avoidance Potential

20% Life Cycle Cost Reduction*

Emissions Avoided



53 MT

=

GHG **emissions** from



134 K Miles driven
Avg US passenger car[#]

=



53 Acres
US Forest in one year[#]

Demonstrated solution can lead to bigger impact through scaling

#Ref: [Greenhouse Gas Equivalencies Calculator | US](#)

*cost savings maybe realized by any of the different actors along the value chain

Living our values



OUR 2030 SUSTAINABILITY TARGETS



Creating sustainable solutions

- 15% reduction in Scope 3 greenhouse gas emissions
- \$3 billion in sustainable research and development



Reducing our footprint

- 50% reduction in Scope 1 and Scope 2 greenhouse gas emissions
- 100% manufacturing sites certified zero waste-to-landfill
- 10% manufacturing sites certified zero water discharge



Engaging our employees and communities

- 80%+ employee engagement rating
- 12 hours training and development per employee per year
- 250,000 hours of volunteer time per year



Doing business right and transparency

- 50% improvement in safety metrics
- Zero tolerance for human rights violations from suppliers
- Report material sustainability matters based on credible frameworks
- Disclose pay equity assurance results



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