

#9 5/16/2018

GENERAL MOTORS



Bridget Burnell

Mission Leader – Sustainable Materials Management



GENERAL MOTORS

GM Environmental Sustainability

- Company Vision
- 2020 Commitments
- Resource Preservation
- Waste Reduction Efforts
- Landfill Free
- Beyond 2020



WE ARE GENERAL MOTORS

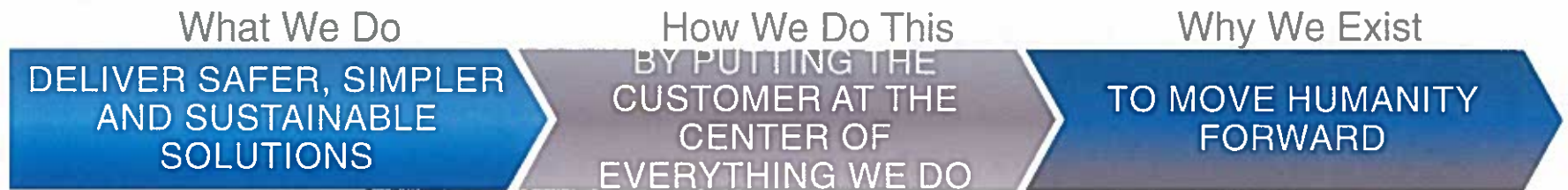
WE ARE COMMITTED TO SAFETY IN EVERYTHING WE DO

WE EARN CUSTOMERS FOR LIFE

WE BUILD BRANDS THAT INSPIRE PASSION AND LOYALTY

TRANSLATE BREAKTHROUGH TECHNOLOGIES INTO VEHICLES AND EXPERIENCES THAT PEOPLE LOVE

WE CREATE SUSTAINABLE SOLUTIONS THAT IMPROVE THE COMMUNITIES IN WHICH WE LIVE AND WORK



Zero Crashes, Zero Emissions, Zero Congestion



ENVIRONMENTAL PRINCIPLES

As a responsible corporate citizen, GM is dedicated to protecting human health, natural resources and the global environment. This dedication reaches further than compliance with the law to encompass the integration of sound environmental practices into our business decisions. The following Environmental Principles provide guidance to GM personnel worldwide in the conduct of their daily business practices.

1. We are committed to actions to restore and preserve the environment.
- 2. We are committed to reducing waste and pollutants, conserving resources and recycling materials at every stage of the product life cycle.**
3. We will continue to participate actively in educating the public regarding environmental conservation.
4. We will continue to pursue vigorously the development and implementation of technologies for minimizing pollutant emissions.
5. We will continue to work with all government entities for the development of technically sound and financially responsible environmental laws and regulations.
6. We will continually assess the impact of our plants and products on the environment and the communities in which we live and operate with a goal of continuous improvement.



2020 SUSTAINABILITY GOALS

Manufacturing Commitments

- **Renewable Energy**
125 MW goal
- **CO₂ Footprint**
20% Reduction (CO₂e tons/veh)*
- **Energy Use**
20 % Reduction (MWH/veh)*
- **Water Use**
15% Reduction (m³/veh)*
- **VOC Emissions from Paint Shops**
10% Reduction goal (kg/veh)

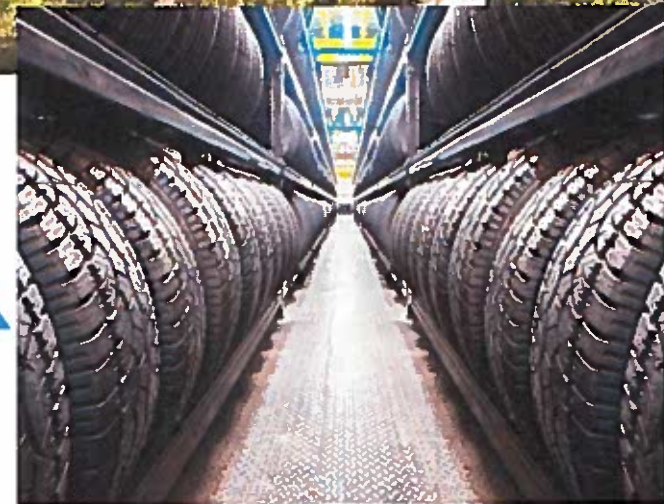
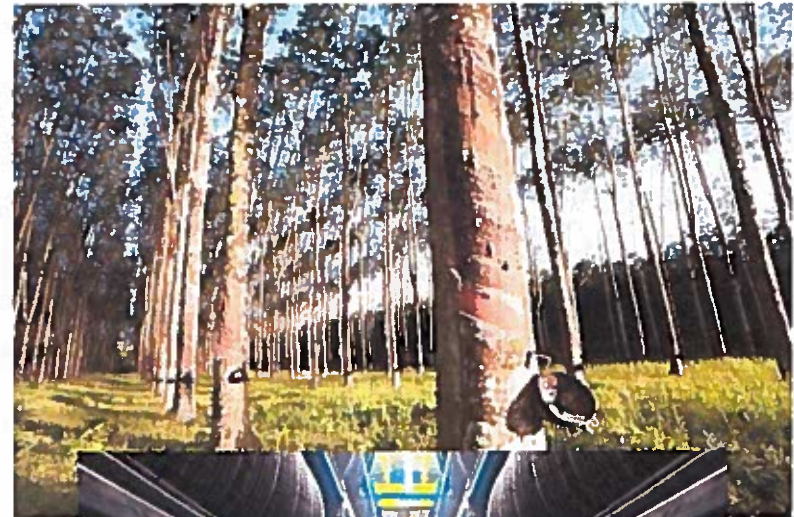
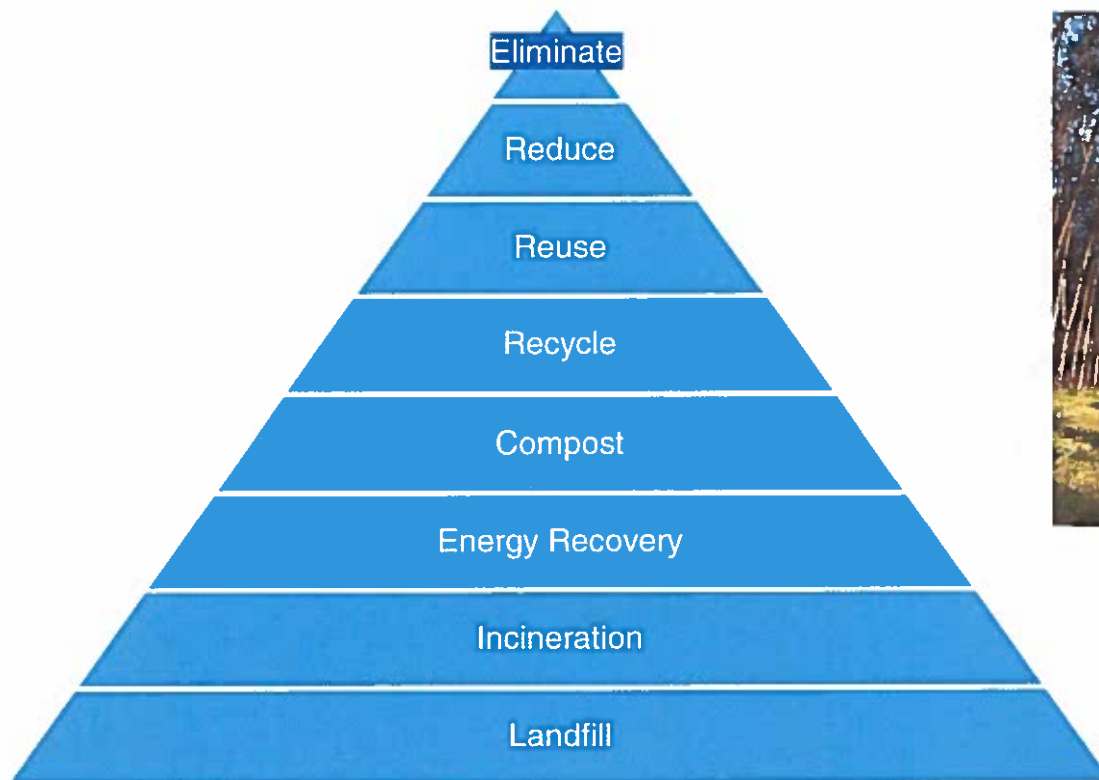


- **Landfill Free**
150 Operations
- **Total Waste**
40% Reduction (kg/veh)
- **Biodiversity**
100% WHC Certified Mfg sites
- **Community Outreach**
100% manufacturing sites

2010 baseline



RESOURCE PRESERVATION



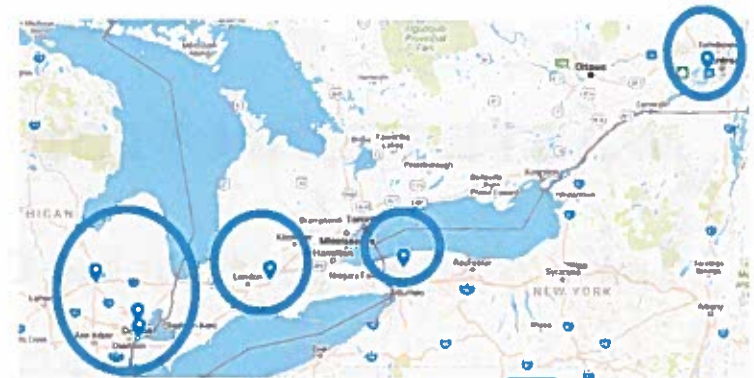
RESOURCE PRESERVATION

Responsible Sourcing

Resources out of Place

Value Supply Web

Material Marketplace



DYP
Network



Datacenter administrative building



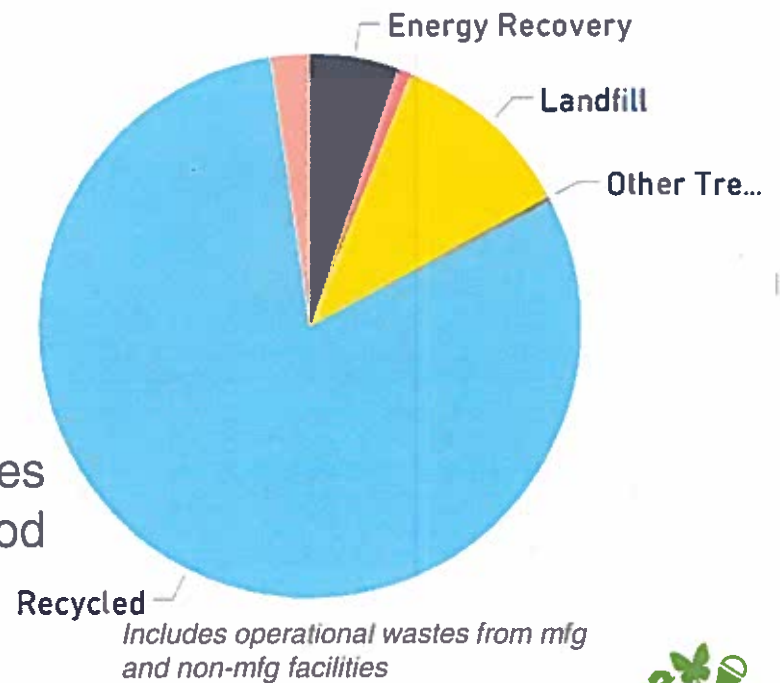
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WASTE REDUCTION EFFORTS

From 2010 to 2017 Global Operations GM has

- Reduced Total Waste (kg/v) 25%
- Went from zero reuse to 139 k-tons of material reused
- Improved data collection and tracking across the globe, including non-manufacturing operations
- Certified 142 operations as zero-landfill

2017 GM Michigan Facilities
Waste by Disposition Method



LANDFILL FREE: BUSINESS CASE FOR ZERO WASTE

Risks

- Upfront cost and investment



Benefits

- Bottom line improvements
- Improved reputation and branding
- Innovation
- Risk reduction
- Community & employee relations

\$1B

Revenue

**LANDFILL-FREE
COSTS**

Going landfill-free requires investment and a long-term view. Upfront costs generally decrease in time, with revenue generated from recycling helping to offset the initial investment.



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LANDFILL FREE: GM PROGRAM

**142 LF Operations
in 15 Countries**

**over 20 LF
Operations in
Michigan**



**Created a "Business Case for Zero Waste" Blueprint
*published to encourage and mentor others***



BEYOND 2020

Transforming Transportation through personal mobility, converging:

- Ride Sharing
 - Reduce congestion & emissions
- Autonomy
 - Safety Focus
- Electrification
 - At least 20 new EVs by 2023
- Connectivity
 - Integrating advanced technologies



Sustainable Materials Management

- Materials Life Cycle Analysis assessment
 - "Cradle to Cradle" mindset
 - Design for Reuse & Supply chain engagement
 - Zero Waste Aspiration
- Energy, Water, GHGs
 - 100% Renewable
 - Minimizing consumption
 - Supply chain & Transportation
- Global Leadership & Engagement



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