

# DAIMLER

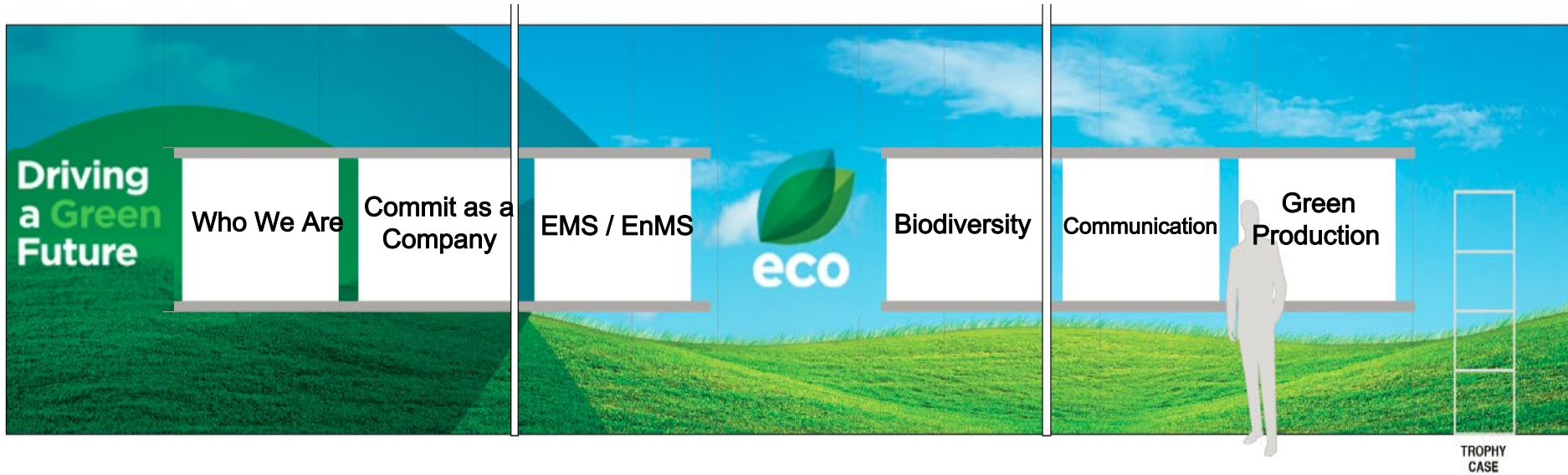
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## Daimler Trucks North America - Gastonia

### Environmental Stewardship in Manufacturing



## Environmental Stewardship

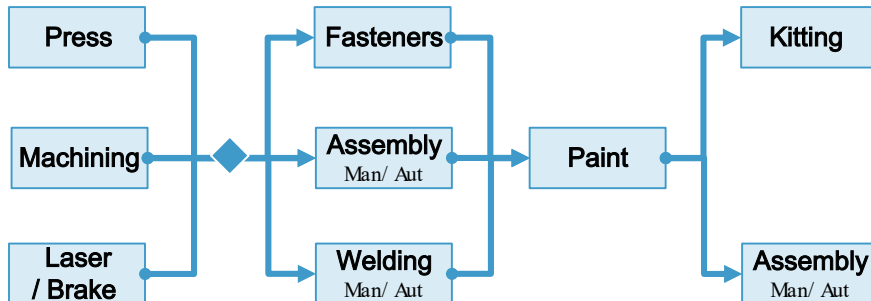


## Gastonia is the Major Supplier of Metal Fabrication Parts to Daimler Trucks North America

### Gastonia Parts Plant

- Manufacturing building, built in 1978 at **220k ft<sup>2</sup>** and last expanded to current **420k ft<sup>2</sup>** in 2000
- **310k ft<sup>2</sup>** Fairview facility added in 2013 for warehousing and assembly
- **3 shift operations**
- **1,241 hourly employees**, 72 office and exempt employees
- SPark operation, **100k ft<sup>2</sup>** with **121 hourly** and 9 office and exempt

### Main Generic Process Chart



### Key Enabler for Efficient Truck Manufacturing

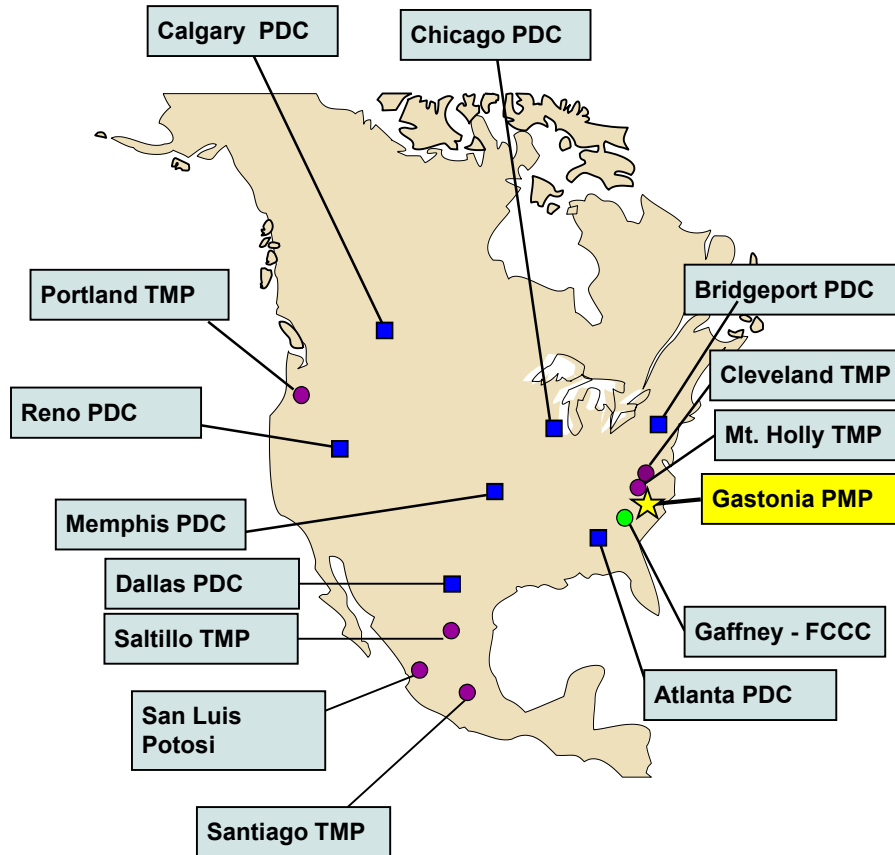
High Complexity Parts with Low and High Volume	Relieve Assembly Plant of High Level Complexity
<ul style="list-style-type: none"> <li>▪ <b>9,000+</b> part numbers</li> <li>▪ Ca <b>400</b> GAS parts/ truck</li> <li>▪ <b>43 M</b> parts shipped in 2017</li> <li>▪ <b>450+</b> manuf routings</li> </ul>	<ul style="list-style-type: none"> <li>▪ TOS+ lineback supplier</li> <li>▪ Line sequence and line set parts</li> <li>▪ Small lot containerization</li> <li>▪ Complex sub-assemblies</li> </ul>

### Parts



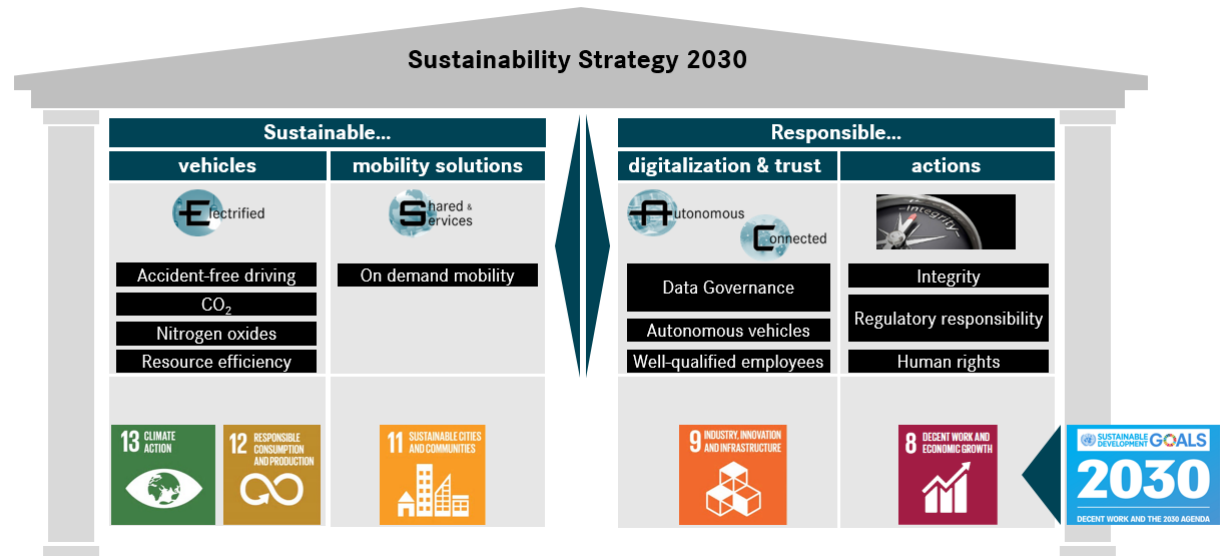
## Gastonia Factory Overview

### Customer locations



## Daimler Sustainability Commitment

- GreenProduction initiatives are part of Daimler AG's Sustainability Strategy and Goals
- Success is measured by a commitment to environmental stewardship and energy conservation.
- Overall goal is to minimize the environmental footprint of Daimler operations by 2030.



## Daimler Trucks North America ECOsystem

- Daimler Trucks North America has created a program called Environmentally Conscious Operations (ECO), part of Daimler's GreenProduction initiative.
- The ECOsystem is created by different people, groups and facilities working together to aid in sustainability and energy conservation. It is a dependent system, where everyone and everything has the potential to impact results.
- Part of Daimler's GreenProduction initiative, Eco is targeted at minimizing the environmental footprint of Daimler Trucks North America operations by 2030 through sustainability in air emissions, water resources, waste and an investment in energy efficiency and renewables.



## Daimler Trucks North America's Commitment

- Daimler Trucks North America is committed to manufacturing in an environmentally responsible manner.
- Daimler Trucks North America's commitment to environmental stewardship begins with senior management and is embraced at all levels of the company.
- DTNA's 'Blue Sky vision' serves as the road map for achieving sustainable operations.



## Daimler Trucks North America Environmental Performance

- Daimler Trucks North America partners with regulatory agencies and reaches beyond requirements through voluntary ISO 14001, 50001, LEED and Superior Energy Performance certifications, among others.
- DTNA has established key performance indicators that quantify progress. Through measurement and analysis, the company continuously evolves to achieve desired tangible results, while leading the way toward sustainability in the industry.
- Targets to minimize the environmental footprint from operations by 2030 include the following aspects:
  - Energy efficiency/renewables
  - Air emissions
  - Water resources
  - Waste



## Employee/ Community Engagement



### Daimler Cares

Our community engagement program DaimlerCares gives employees 2 paid volunteer days, matches up to \$500 in donations, and donates to nonprofit partners across the nation every year. In 2017, 1000 employees donated \$300,000, DTNA donated \$1.2 million and over 15,000 volunteer hours were recorded.



### 3's for trees

DTNA partners with the Portland Trail Blazers and Friends of Trees to plant 3 trees for every 3 pointer scored. So far, DTNA has planted over 14,000 trees.



### Sustainability Club

Our employees care about sustainability and are instrumental in creating and completing projects around our offices and plants. Our corporate club has chapters nationwide and over 300 employee volunteer members!



### Sponsorship

- EcoChallenge
- GoGreen



### WeRide

The employee alternative transportation program encourages employees in Portland Oregon to find new exciting ways to get to work!



## Daimler Trucks North America Environmental Performance



- Absolute reduction of 20% in Europa until 2020 (base year 1992/94) (CO<sub>2</sub>-Target: -40% until 2030)
- Increase of energy efficiency in production; operation of CHPs (combined heat & power plants), PVs (photo-voltaic facilities); other renewable energy sources; definition of the energy portfolio, CO<sub>2</sub> certificates

- Specific reduction of 2.5%/vehicle/year until 2030 (base year 2013/2014)
- New technologies, energy efficient processes & system, use of energy checklists;
- Optimization of energy management systems

- Globally raise the waste recycling rate until 2030 to 90 – 95% resulting in -2.5%/vehicle/year of waste for disposal (target: "Zero waste to landfill")
- Application of integrated material, process, and recycling strategies

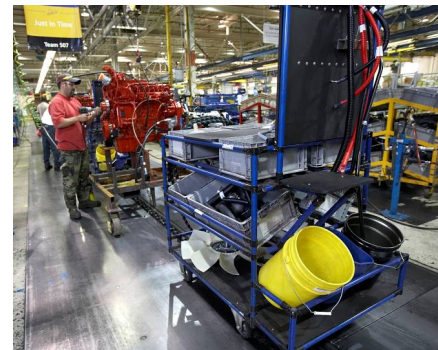
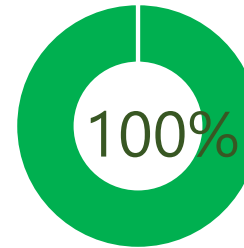
- Water reduction target of 2.1% per vehicle per year
- 100% implementation of stormwater standard until 2030
- Continuous improvement of the water management. Reduction of fresh water consumption by consequent application of water saving technologies (special focus on sites located in areas with water shortages)

- Compliance with legal frame conditions (becoming increasingly strict) and observation of competitors

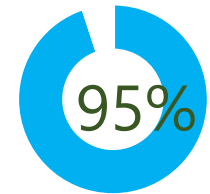
## Zero Waste to Landfill

- Nothing from truck production operations at this plant is ever sent to a landfill — ALL Daimler Trucks North America locations have achieved Zero Waste to Landfill.
- Over a million pounds of trash per year is eliminated from the landfills through waste reduction, reuse and recycling.
- Zero Waste to Landfill is an initiative that requires the input and participation of all employees. The act of recycling is a constant reminder that DTNA cares about its impact on the environment.
- The 'End to End' initiative driven by Supplier Management is working to reduce both the use of expendable packaging and the distance parts travel to our plants.
  - Through this one initiative, Daimler Trucks North America has eliminated over 420 tons of waste per year-the equivalent weight of 840 killer whales-in expendable packaging like pallets and boxes.

Zero Waste to Landfill

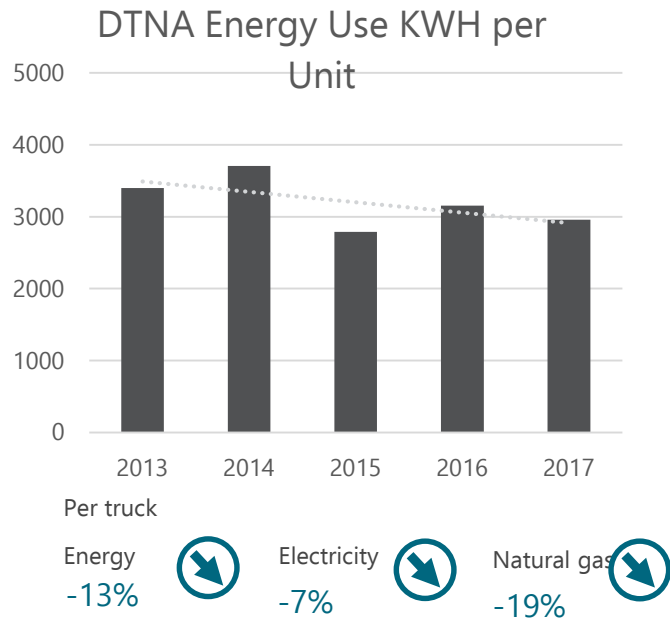


Recycling/Reuse Rate



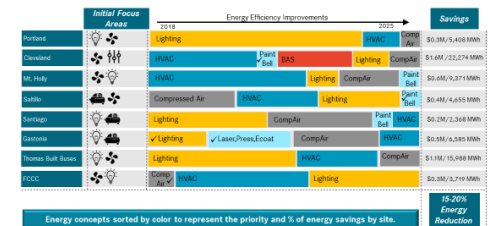
5% Waste to energy

## Energy Efficiency

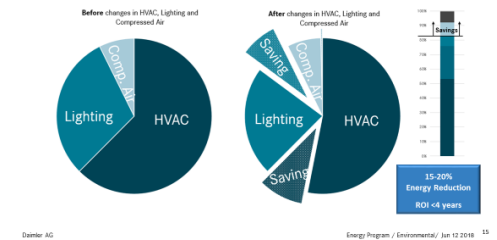


- The Energy Team at DTNA performs ongoing conservation initiatives to improve the energy efficiency across plants and facilities.
- The concept of reference factory is used to assess the performance of the plants based on the main energy consuming processes.
- A gap analysis is used to identify the energy efficiency projects that have the greatest potential to reduce energy and provide the best return on investment.
- Detroit has achieved ISO 50001 and Platinum certification through DOE Superior Energy Performance while the remaining DTNA sites are actively working toward this certification.

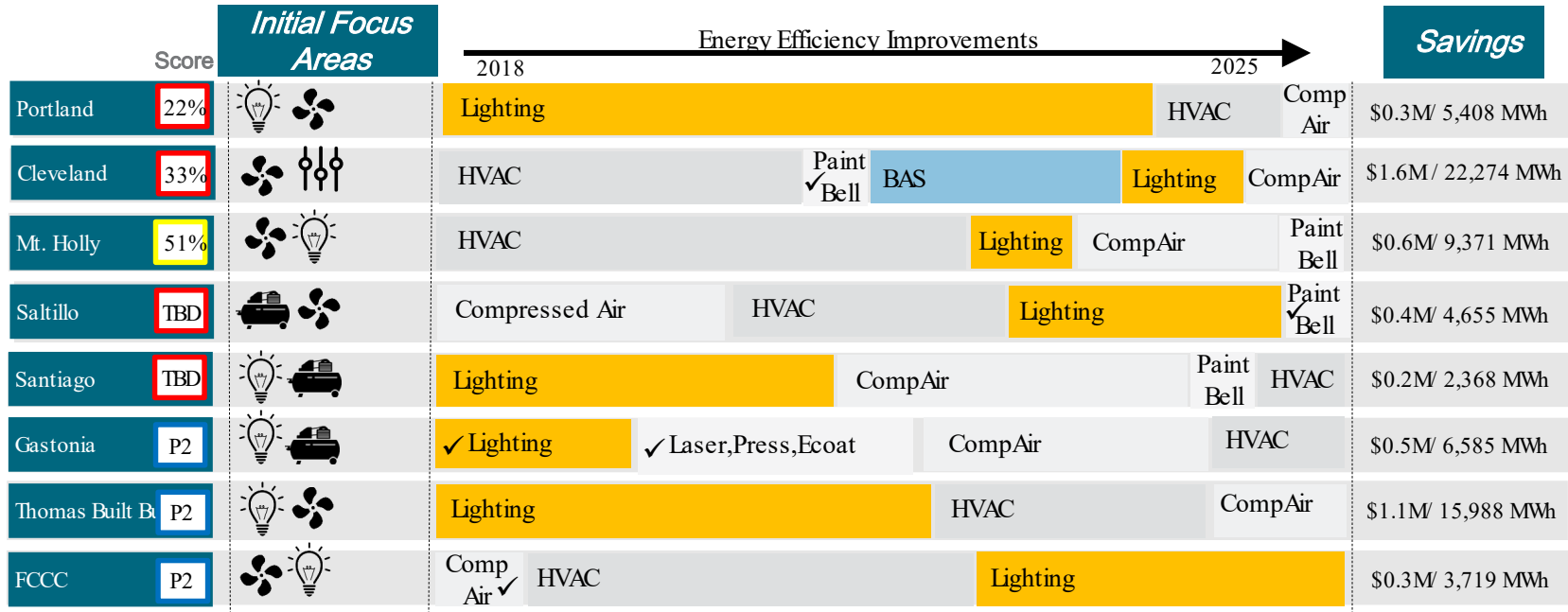
### Energy Efficiency Improvements to Close Gap of Reference Factory



### Energy Reference Factory Defines Concepts for Potential Savings



## Energy Efficiency Improvements Identified to Close Gap of Reference Factory



Energy concepts sorted by color to represent the priority and % of energy savings by site.

15-20%  
Energy  
Reduction

## Renewable Energy

- A significant portion of energy used in the DTNA headquarters is created through onsite renewable energy such as solar electric and solar hot water systems.
- Two facilities in NC, partnered with Duke Energy to create a Photovoltaic (PV) solar Field, which produces a total of 748 kilowatts of renewable energy for the Duke Energy Power grid. That's enough electricity to power approximately 80 homes.
- DTNA is exploring additional green/renewable energy sources to become more energy efficient in solar, wind, etc.
- Renewable Energy Purchases:
  - Corp 6 is operating 100% on renewable energy as a pilot for purchasing renewable energy directly.
  - The Clean Wind Program through PGE utility adds 14% renewables to the utility mix. But, through an election to be a part of the Clean Wind Program, DTNA is able to elevate its renewable ration to 30% through renewable energy credits.



 359 kW

 38



 389 kW

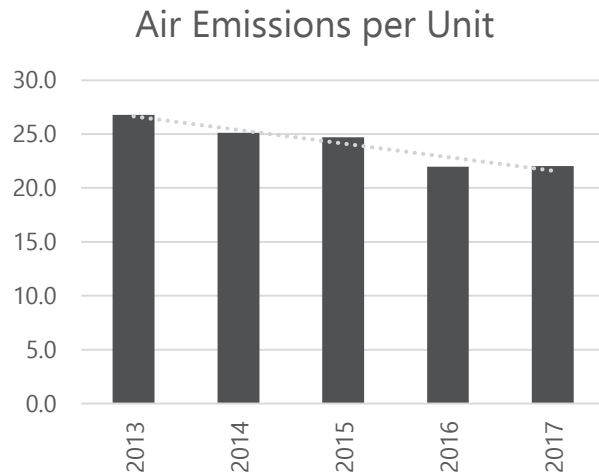
 41



 200 kW

 21

## Air Emissions



VOCs per truck

-13% 

- DTNA has positively impacted air quality by achieving a 13% reduction in emissions across all facilities.
  - Adding new spray technology increases transfer efficiency and minimizes waste.
  - Incorporating high solids coating technology reduces and/or eliminates volatile organic compounds (VOCs).
  - Strict chemical approval process minimizes air pollutants with new formulations and product substitution.
- Environmental impacts are incorporated into production planning. Upgrades at one site has decreased electricity, natural gas and air emission by 20%.



## Water Resources

Daimler Trucks North America works to not only keep waters clean, but also conserve and reuse water when possible.

### Elimination of storm water pollution

Storm water protection is fundamental for reduction of environmental impacts. It may contribute to reduction of water consumption by reuse for garden watering in sanitary installations etc.

- DTNA has a goal of 100% implementation of storm water standard until 2030.
- DTNA's water reduction target is 2.1% per vehicle per year.

### Water saving technologies / water recirculation

Maintenance and facility management activities are aligned with environmental aspects to reduce water consumption by optimization of existing processes and facilities like cooling towers, piping, etc.

Planning of new facilities and processes is considered possibilities to further reduce water consumption by introduction of closed loops respectively dry processes, e.g. in painting.

- DTNA is focused on reduction of fresh water consumption by consequent application of water saving technologies and the reuse of treated water with a special focus on sites located in areas with water shortages such as the Mexico facility.

### General water management

DTNA is making significant improvements to improve water quality retention/biodiversity.

- The DTNA Biodiversity Initiative called 'green space' includes adding rain gardens, natural areas, native species, etc. at manufacturing sites.





## Recognition

Sustainability efforts at DTNA have received international, national and regional recognition.

- DTNA Headquarters - LEED Platinum and Gold Sustainability at Work
- Portland Truck Plant – Silver Sustainability at Work
- DTNA – Daimler Environmental Leadership, Finalist
- FCCC – Daimler Environmental Leadership, Top Winner; EPA WasteWise, SC Environmental Excellence Program
- MTH – Steward in NC Environmental Stewardship Initiative
- GAS – Steward in NC Environmental Stewardship Initiative
- CLE – Steward in NC Environmental Stewardship Initiative
- TBB – Steward in NC Environmental Stewardship Initiative
- MX – Industria Limpia and Daimler Environmental Leadership Award, Top Winner



## Environmental and Energy Management System Overview



2006 – Daimler Trucks North America LLC certified to the 2004 Standard

2019 – Daimler Trucks North America LLC implementing 50001 EnMS at all facilities

2018 – Daimler Trucks North America LLC certified to the 2015

## Biodiversity

- Daimler Trucks North America's new headquarters achieved LEED Platinum certification, the highest environmental recognition available in building design, placing it among the top seven percent of LEED-certified buildings worldwide.

As part of the certification:

- 50% of the project site (3.3 acres) is covered in native or locally adapted plant species, which helps to absorb storm water and provides a beautiful environment for employees.
- There is a 54% reduction in water usage through indoor plumbing and irrigation – the equivalent of 1,012,314 gallons of water saved.
- 47% of the rainwater is captured by naturally falling onto landscaped area, bio-swales or the green roof and diverted toward landscaped area instead of going into the storm sewer/river.
- A significant portion of energy used in the Daimler Trucks North America headquarters is created through onsite renewable energy such as solar electric and solar hot water systems.
  - The solar electric panels saves 241,451 kilowatt hours or 170 metric tons of CO<sub>2</sub> or energy (13% of the total building energy usage).
  - The solar hot water panels- save 4040 therms or 21.4 metric tons of CO<sub>2</sub> (instead of a natural gas boiler heating water).
  - The DTNA headquarters as reduced electricity usage by 1,407,010 kilowatt hours or 989 metric tons of CO<sub>2</sub> compared to standard building code Oregon.



## Biodiversity at Gastonia



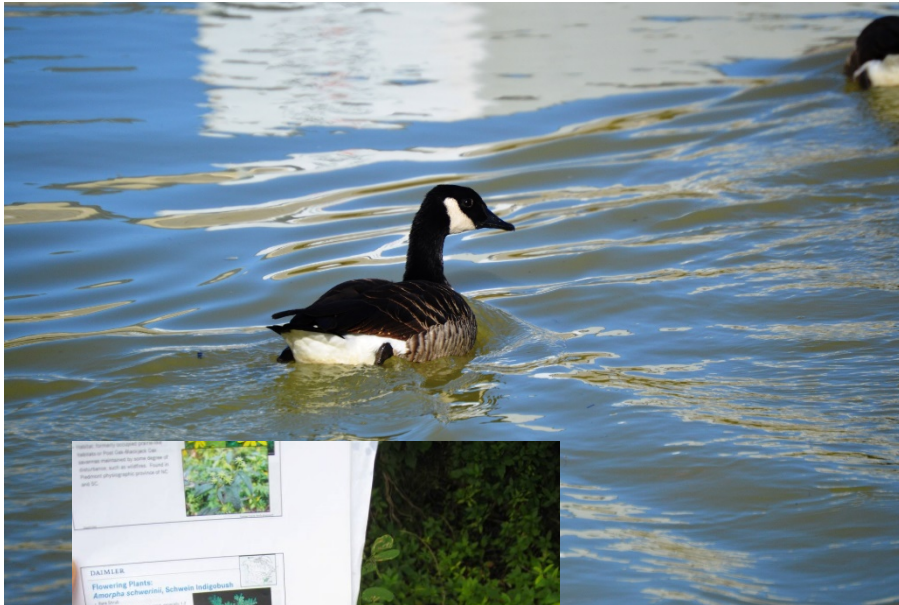
### DAIMLER Daimler Trucks North America

Runoff generated during the early phases of a storm usually has the highest concentrations of sediment and dissolved pollutants. Because a retention pond dilutes and settles pollutants in the initial runoff, the concentration of pollutants in the runoff released downstream is reduced. Two mechanisms that remove pollutants include settling of suspended particulates and biological uptake, or consumption of pollutants by plants, algae, and bacteria in the water.

Over fifteen native grass and sedge plant species and five native aquatic plants have been planted around and in the pond shelf. This vegetation helps filter pollutants in the water as well as provide food source and shelter for many native fowl.



## Biodiversity – Evaluation of our ‘Green Space’



DAIMLER

Implementation – surface value  
Example: Gastonia

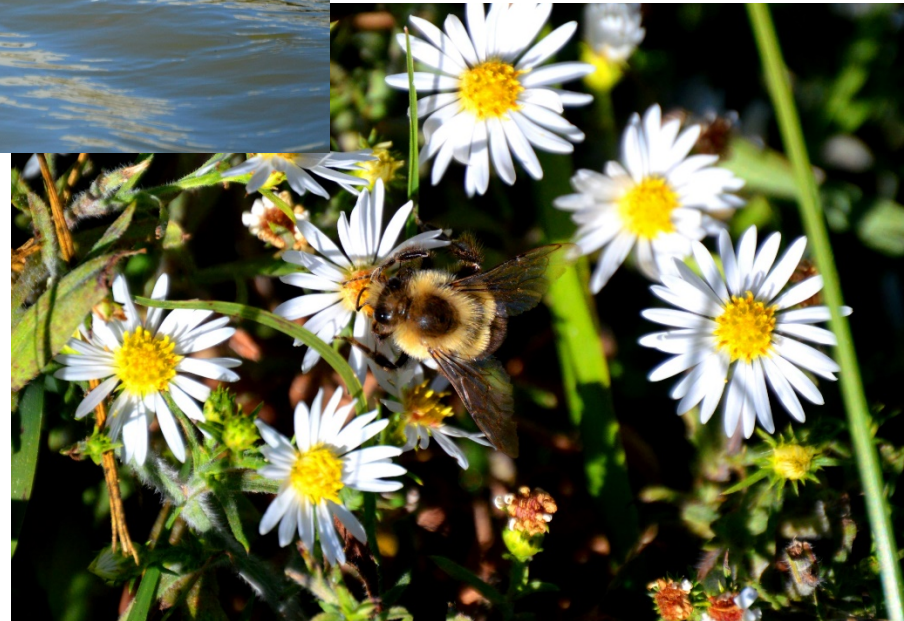
Classification	0	1	2	3	4	5
%	0	24	67	56	13.3	0
Acres	0	10.3	28.8	24.1	5.7	0
Factors	0	1	4	8	16	32
Acres* Factor	0	10.3	115.2	192.5	91.5	0
m <sup>2</sup> *Factor	0	41741.3	466110.7	779170.1	370105.8	0

Total Site Area	67.74 acres
	274146.44 m <sup>2</sup>

$\sum(m^2 * \text{Factor})$	1657127.88
$\frac{\sum(m^2 * \text{Factor})}{\text{Total Site Area}}$	6.04

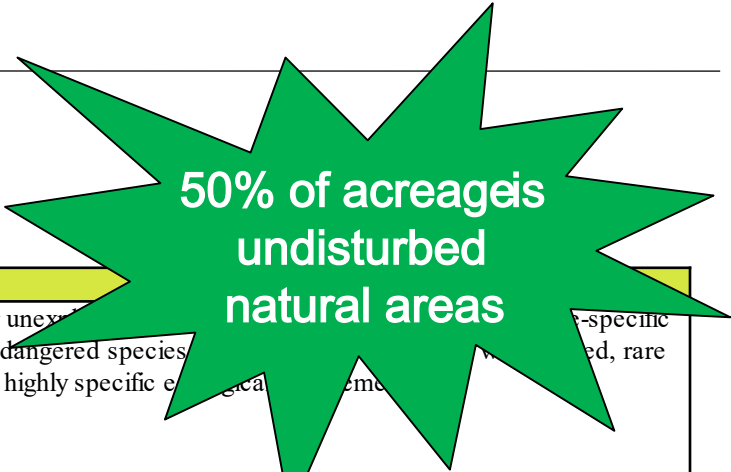
Department

Daimler Trucks North America



environmentally  
conscious  
operations

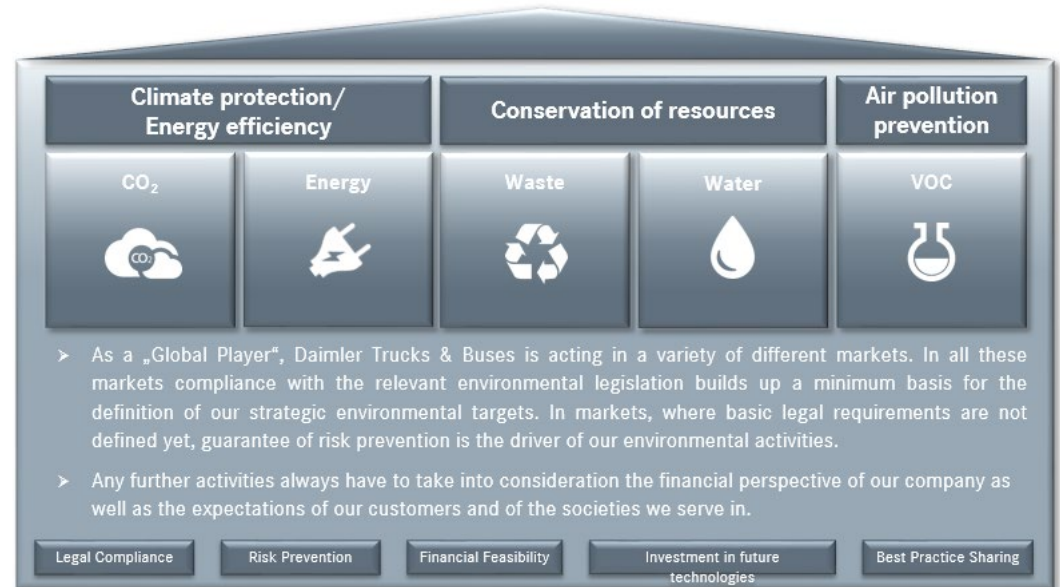
## Implementation – surface value Example: Gastonia



Classification	Factor	Definition of classifications
V	32	Historically rare and representative natural, extensive* or unexploited ecosystems with a high diversity of species. Biotopes with many critically endangered and endangered species and rare plant communities that provide a habitat for animals with highly specific ecological requirements.
IV	16	Near-natural ecosystems with a largely complete inventory of species. Biotopes with a number of vulnerable species, some of which are critically endangered, the plant species of which occur among well-defined and often rare plant communities, and which provide habitat for animals with specific ecological requirements. Highly structured hedges or field woods. ***Some species are endangered or protected, have habitats for special needs.
III	8	Extensively exploited ecosystems only recently characterised by natural/ undisturbed development, or intensively exploited ecosystems with rare/ extreme site-specific characteristics. Biotopes with a rich diversity of species, including recently established** biotopes, typically with individual but neither critically nor regionally endangered species, whose plant species usually already constitute well-defined communities and which provide a habitat for animals/ plants with somewhat more specific ecological requirements. Field woods or field hedges, and large native trees.
II	4	Ecosystems significantly over characterised by human influence. Biotopes with low to moderate species diversity, generally with no endangered species and whose vegetation is mostly encountered in one of the prevalent plant communities that are highly affected by human activity but offer no habitat for specialized species, but only for commonly encountered species. Native bushy species and non-native or native hedges. Non-native trees and small native trees.
I	1	Intensively exploited areas largely colonised by ubiquitous species. Biotopes characterised by very low species diversity with commonly encountered species, with vegetation that cannot be assigned to typical plant communities. Non-native bushy species.
0	0	Sealed areas with no significant vegetation or animal population



EcoZone



GreenProduction

## Green production strategy Daimler Trucks & Buses





## Summary: Target System Daimler Trucks & Buses

Category in production	Daimler Trucks & Buses	
CO <sub>2</sub>	<p>Absolute reduction of 20% in Europa until 2020 (base year 1990) <b>(CO<sub>2</sub> Target: -40% until 2030)</b>                      Increase of energy efficiency in production; operation of CHPs (combined heat &amp; power plants), PVs (photo-voltaic facilities); other renewable energy sources; definition of the energy portfolio, CO<sub>2</sub> certificates</p>	✓
Energy	<p>Specific reduction of <b>-2,5%/vehicle/year until 2030</b> (base year 2013/ 2014)                      New technologies, energy efficient processes &amp; system, use of energy checklists;                      Optimization of energy management systems</p>	✓
Waste	<p><b>Globally raise the waste recycling rate until 2030 to 90 – 95%</b> resulting in -2,5% vehicle/ year of waste for disposal (<b>target: „Zero waste to landfill“</b>)                      Application of integrated material, process, and recycling strategies</p>	✓
Water	<p>Water reduction target of <b>2,1% per vehicle per year</b>  <b>100% implementation of stormwater standard</b> until 2030                      Continuous improvement of the water management. <b>Reduction of fresh water consumption</b> by consequent application of water saving technologies (special focus on sites located in areas with water shortages)</p>	✓
VOC	<p><b>Compliance with legal frame conditions (becoming increasingly strict)</b> and observation of competitors</p>	✓

## Overview Target System 2030 for GreenProduction at DAIMLER

- Current resolution status 12/ 2017
- Decisions MBC-ExCom 03/ 2018
- Decisions BoM 04/2018

GreenProduction DAI										
		CO <sub>2</sub>	Energy	Waste <sup>1</sup>		Water	VOC			
		2020	2030	2022	2030	2022	2030	-		
<p><i>Cars</i></p> <p><i>VAN</i></p> <p><i>Trucks/ Buses</i></p> <p><i>Central Functions: CBS/MBVD/GSP</i></p>	<p><b>-20% abs EU</b> as compared to 1992/ 94</p>	<p><b>-40% abs EU</b> as compared to 1992/94</p>	<p><b>-3.5%/veh. p.a.</b> (-25% veh. as compared to 2014)</p>	<p><b>-3.5%/veh. p.a.</b> (-43% veh. as compared to 2014)</p>	<p><b>-3.5%/veh. p.a.</b> (-25% veh. as compared to 2014)</p>	<p><b>-3.5%/veh. p.a.</b> (-43% veh. as compared to 2014)</p>	<p><b>-2.0%/veh. p.a.</b> (-15% veh. as compared to 2014)</p>	<p><b>-3.0%/veh. p.a.</b> (-39% veh. as compared to 2014)</p>	<p><i>Compliance with legal requirements</i></p>	
			<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><b>-1,14% veh p.a.</b> (as compared to 2014) <i>In preparation Q4/2018</i></p>	<p><i>Observation of competitors</i></p>	
			<p><b>-2,5%/veh. p.a. global</b> (-34%/veh as compared to 2014)</p>	<p><b>-2,5%/veh. p.a. global</b> (-34%/veh as compared to 2014)</p>	<p><b>-2,5%/veh. p.a. global</b> (-34%/veh as compared to 2014)</p>	<p><b>-2,5%/veh. p.a. global</b> (-34%/veh as compared to 2014)</p>	<p><b>-2,1%/veh.p.a global</b> (-29%/veh as compared to 2014)</p>	<p><b>-2,1%/veh.p.a global</b> (-29%/veh as compared to 2014)</p>	<p><i>Observation of competitors</i></p>	
			<p><b>-1.5% CIP/a<sub>abs</sub> by 2030</b> as compared to 2013 (Germany/ EU)</p>	<p><b>No target (production-relevant parameters)</b></p>					<p><b>No target (production-relevant parameters)</b></p>	<p><i>Observation of competitors</i></p>
<p><i>Strategic positioning</i></p>	<p><i>"Execution of voluntary commitment to EU target" and new CQ-neutral factories</i></p>	<p><i>"As good as best competitor"</i></p>	<p><i>"Active risk management"</i></p>	<p><i>"Active risk management"</i></p>	<p><i>"Active risk management"</i></p>	<p><i>"Active risk management"</i></p>	<p><i>"Active risk management"</i></p>	<p><i>"Compliant with regulation"</i></p>		

GreenProduction BoM/ PP/ FP / April 23, 2018

## Products

### Fuel Efficiency

- It is critical that DTNA continuously improves the fuel efficiency (FE) of all vehicles, for both our direct customers and society as a whole. We are constantly working to improve our FE, and we have been the market leader in FE for years. The new Freightliner Cascadia® boasts up to an 8 percent\* FE improvement over our previous model, and we are constantly researching ways to continuously improve our benchmark.
- DTNA has certified several vehicles, including the Cascadia, in the EPA's SmartWay Program. EPA's SmartWay program helps companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency.



## Products

### SuperTruck

In 2009, the U.S. Department of Energy challenged truck manufacturers to truly push the envelope in fuel efficiency, and we gladly accepted the challenge! It was no small feat to create a truck that was 50 percent more freight efficient, while also achieving an engine target of 50 percent braking thermal efficiency.

We not only accepted the challenge, we far surpassed our goals. We achieved 115 percent freight efficiency improvement and 12.2 MPG. But we aren't done yet; a follow-on project, SuperTruck 2, launched in January 2017. In contrast to the SuperTruck 1 program where the goal was to push the boundaries of what was possible, SuperTruck 2 is focused on finding cost-effective, fuel-efficient solutions that give our customers a real return on investment.



## Products

### Electrification

DTNA premiered two fully electrified commercial vehicles, a Freightliner eCascadia™ heavy-duty truck and a Freightliner eM2 106 medium-duty truck in June 2018 during the Daimler Trucks Capital Market and Technology Day in Portland, Oregon. These trucks are in addition to the Saf-t-Liner® eC2 school bus, known as Jouley.

Both electrified models are designed to fit specific applications, carefully identified through an extensive co-creation process with customers. The goal is to build and deliver commercial electric vehicles that support the business and sustainability goals of our customers.

