



Environmental Achievements **Hagerstown Operations** **Volvo Powertrain North America** **Hagerstown, MD**



Overview

The Hagerstown operations of Volvo Powertrain North America began in 1961 as a subsidiary of Mack Trucks, Inc. The 1.5 million square foot facility in western Maryland continues to design and produce engines and transmissions for MACK® trucks, and now also produces engines for Volvo Trucks North America. A \$150 million renovation and construction effort at Hagerstown entered its final phase in 2007. Living up to AB Volvo's core value, "Care for the Environment," the Hagerstown plant exemplifies this value through implementing numerous environmental initiatives with the overall goal of reducing their impact on the environment. Some of the initiatives include:

- **Implementing a Certified ISO 14001 Environmental Management System**
- **Reducing water consumption through treatment and recycling program**
- **Increasing energy efficiency and resultant decrease of greenhouse gas emissions**
- **Developing and implementing solid waste reduction programs (reuse, reduce and recycle)**
- **Participating in voluntary programs such as Businesses By The Bay and EPA Climate Leaders Program**

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ISO 14001 Certified

The facility was initially certified to the ISO 14001 standard in 2003 and recertified in 2006. Framed by the elements of the ISO 14001 standard, the plant's environmental management system not only emphasizes compliance with Federal, State and Local environmental regulations, it also mandates that the facility "continually improves" their environmental performance.

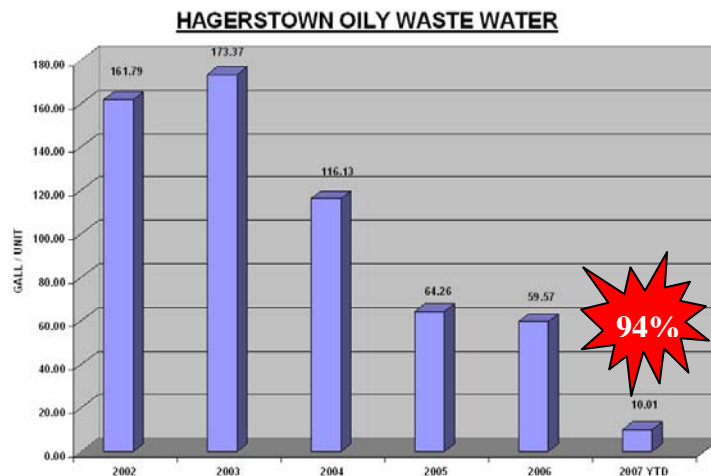


Wastewater Recycling Program

As a result of Hagerstown's commitment to conserve natural resources, a wastewater recovery system using a combination of ultra-filtration and reverse osmosis, was recently installed to clean the wastewater to a point that it may be re-used in the manufacturing process as cooling water. Overall, the plant expects to use 15% less water as a result of this improvement. As shown in the photo below, the water quality significantly improves after the ultra-filtration and subsequent reverse osmosis treatment steps.



Not only will this treatment process reduce water consumption, it has already significantly reduced the costly process of shipping wastewater off-site for treatment and disposal. For example, the amount of oily wastewater shipped off-site has been reduced by 94% since 2002!



NOTE: Data includes waste water/oil coolants which is shipped off-site for treatment. Data includes waste water that is generated from manufacturing operations.

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Energy Efficiency and Air Emissions

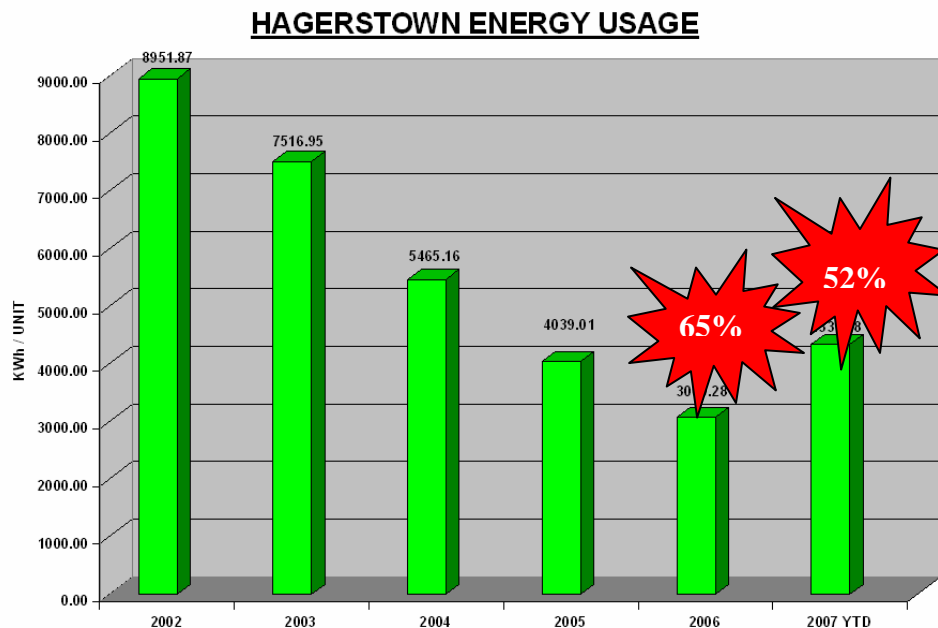
As part of the company's efforts and commitment under the [EPA Climate Leaders](#) program to reduce green house gas emissions by 20 percent by 2010, Hagerstown's energy and subsequent GHG emissions reductions are key to achieving this company-wide goal and the facility has made dramatic progress in this area.

In 2003, the decision to invest \$150 million (US) at the facility was announced and the project was referred to as "The Site Transformation." The Site Transformation project team was tasked with the responsibility to make all necessary changes to the site to ensure the facility could support the design, certification, and manufacture of new engine platforms while reducing energy consumption and creating process improvements that would reduce waste generation and excessive consumption of natural resources. The Transformation Team willingly and proactively included environmental improvements and energy saving projects in the scope of their project with the goal of delivering a world class facility.

The building enhancement aspect of the Transformation project was successful in implementing numerous improvements that provided true environmental benefits, particularly from an energy efficiency standpoint. Specifically, the facility upgrades include projects such as: upgrading to a more energy efficient heating system (one boiler even has the capability of burning renewable fuels such as bio-diesel and vegetable based oils), replacing lighting in manufacturing areas with more energy efficient, less toxic lights, and upgrading roofing construction material with material that is more energy efficient.

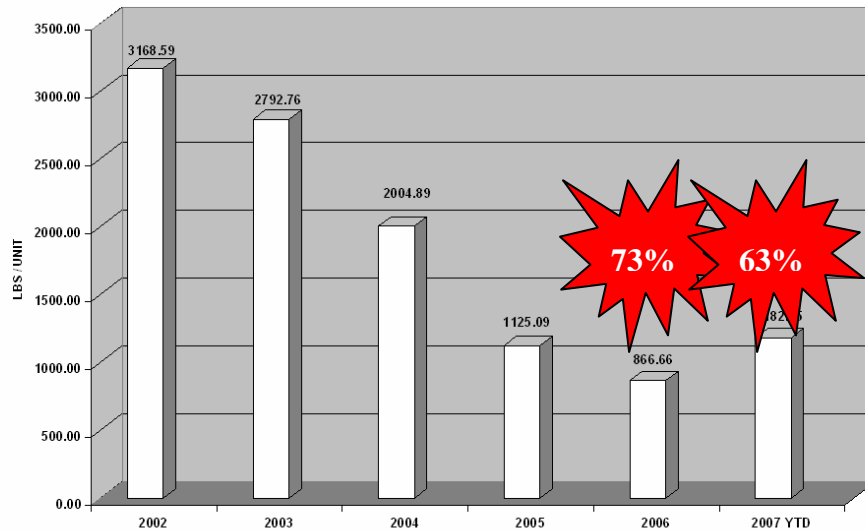
All of these upgrades, in addition to other ongoing energy reduction efforts have resulted in a 65% decrease in energy usage from 2002 to 2006 (see chart below).

Similarly, the major green house gas, Carbon Dioxide, has also decreased by 73% over the same time period (see chart below).



NOTE: Data includes electricity, natural gas, #4 fuel oil usage, and diesel fuel burned in both engine production and R and D test cells.

HAGERSTOWN CO2 EMISSIONS

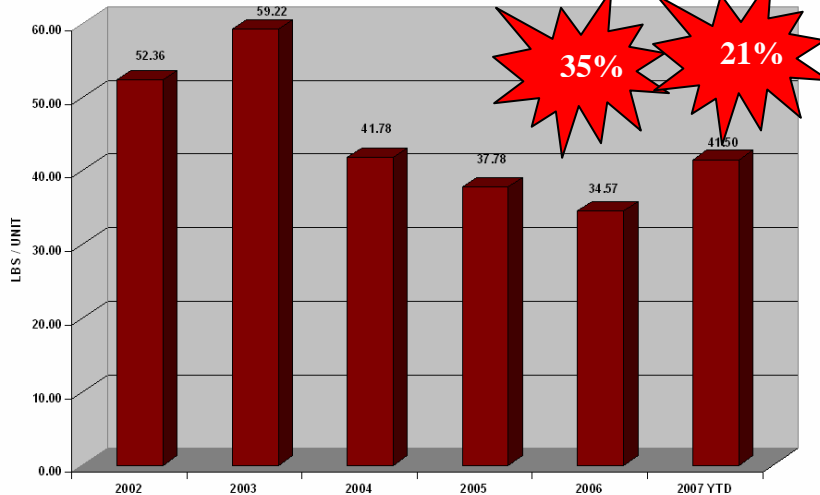


NOTE: Data includes emissions from burning natural gas, #4 fuel oil and diesel fuel burned in both the engine production and R and D engine test cells.

Solid Waste Reduction/Recycling Programs

The Hagerstown plant has implemented numerous solid waste recycling programs and is actively engaged in reducing the amount of waste sent to landfills. The plant has implemented programs to recycle paper, cardboard, plastics, metal, wastewater, wood, batteries, computer equipment, beverage containers, etc. As a result of these programs, these waste streams that would have been otherwise landfilled, are now beneficially reused. Impressively, from 2002 to 2006, the plant has reduced the amount of waste being sent to a landfill by 35%!

HAGERSTOWN WASTE LANDFILLED



NOTE: Data includes compacted plant trash only.

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Environmental Recognition and Public Participation

Not surprisingly, in their attempt to “live” the core value, the Hagerstown facility has received public recognition for their environmental accomplishments. The facility was recognized in 2006 with a “[Businesses for the Bay](#)” award from the Alliance for the Chesapeake Bay. The Alliance is a coalition of the six states with territory in the watershed of the Chesapeake Bay, along with the District of Columbia, US Environmental Protection Agency, and various citizen advisory groups. The award recognized the Hagerstown operations for Outstanding Achievement for Pollution Prevention by a Large Facility, and was presented to the facility by Maryland Governor Robert Ehrlich, Jr.



As mentioned earlier, Hagerstown is a proud participant in the EPA Climate Leaders program. The Climate Leaders Program is an EPA-established industry-government partnership that works with companies to develop long-term comprehensive climate change strategies. Partners, such as Mack, set a corporate-wide greenhouse gas (GHG) reduction goal and inventory their emissions annually to measure progress.

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