

# CATALIST

## The International SuperTruck



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### FULL-SCALE WIND TUNNEL TESTS



Tunnel tests were conducted at the Air Force's National Full-Scale Aerodynamics Complex (NFAC) at NASA Ames.



Tractor trailer trucks make up 12 percent of the U.S. consumption of petroleum. In comparison, cars make up 34 percent and aircraft make up 9 percent.

### PARTNERING



Partners include Navistar, Inc., Wabash National, Bosch, Argonne National Laboratory, Michelin, Mekra Lang, Delco Remy, PPG Industries, Eaton and Sabc Global.

### A NEW TYPE OF TRACTOR TRAILER TRUCK

Lawrence Livermore National Laboratory researchers have designed a new type of tractor trailer truck that improves fuel economy compared to the heavy vehicles on the road today.

Aerodynamic drag is caused from pressure differences around the vehicle — the gap between the tractor and the trailer, the underbody (between trailer axle and wheels) and the trailer body (base).

Most of the usable energy goes into overcoming drag and rolling resistance at highway speeds.

To combat this problem, the team used computer and experimental modeling to demonstrate new aerodynamic body shapes to significantly reduce drag.



### DECREASING AERODYNAMIC DRAG



The trucking industry could potentially achieve fuel efficiency gains equating to 21 billion gallons of diesel fuel saved per year



210 million tons of reduced carbon dioxide emissions



\$52 billion saved at an average diesel price of \$2.51 per gallon



The enhanced aerodynamic designed vehicles average about 13 mpg and a 104 percent freight efficiency improvement