Commercial Truck Efficiency Standards:
Creating a Business Edge for U.S. Vehicle Technology Manufacturers

The U.S. Environmental Protection Agency and National Highway Traffic Safety Administration finalized the nation's first standards to improve fuel economy and reduce greenhouse gas pollution from medium- and heavy-duty trucks and buses. These rules will **help U.S. manufacturers of commercial engines and vehicles maintain their global leadership,** creating more American manufacturing jobs across the supply chain. According to export data from the U.S. International Trade Commission, from 2001 to 2010, the average annual growth rate in exports for heavy duty trucks, chassis and trailers grew at twice the average rate as all U.S. exports.[i] The new commercial vehicle rules also **place the U.S. ahead of all other nations** including China, Japan and Europe in creating strong regulations that reward innovation in the medium- and heavy-duty vehicle sector.

Innovative U.S. Vehicle Technology Companies Already Have Solutions At Hand

The National Academy of Sciences found that a variety of solutions are available to improve fuel efficiency and reduce pollution (see NAS, *Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles*, 2010), e.g.,:

- Engine and vehicle manufacturers can use direct-injection technology, turbochargers, low friction lubricants, or waste heat recovery technologies.
- The body of a truck can reduce emissions per mile driven by reducing idling, improving aerodynamics, reducing weight (primarily through switching to aluminum), or using low rolling resistance tires.

Companies Manufacturing APUs and System Components

Source: www.cggc.duke.edu/environment/climatesolutions/greeneconomy_Ch3_AuxiliaryPowerUnits.pdf

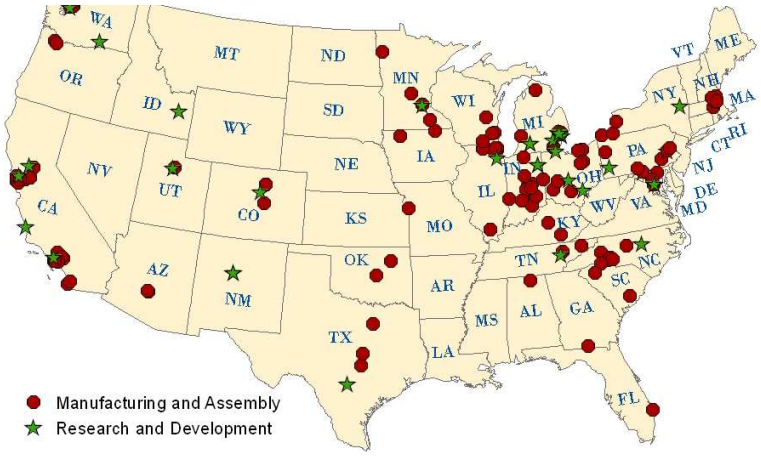
These solutions require new engineering and often the manufacture of new parts. U.S. companies supplying parts will see new customers, giving them a business edge in developing and manufacturing efficient, low polluting technologies over other nations including China, Japan and Europe. As just one example, a growth in demand for Auxiliary Power Units for anti-idling will benefit the firms shown across the U.S. map on the left.

i The average annual growth rates for US exports without residuals (scrap) from 2001 to 20010 was 3.6%; heavy duty trucks and chassis grew at a rate of 7.3% for the same period, and truck trailers at a rate of 7.3%. (Source: Compiled data from USITC, July 2011).

Increased Demand for Hybrid Trucks Will Particularly Benefit U.S. Firms

According to Duke University, the U.S. has a distinct advantage with respect to the manufacturing of advanced heavy duty vehicle technologies. At least 25 U.S.-based truck makers and 14 U.S. hybrid system developers today are actively involved in both electric hybrid and hydraulic hybrid technologies. For example, *Eaton Corporation* (headquartered in Cleveland, OH) is a global leader in the design, manufacture and marketing of fuel efficient powertrain systems and other components for commercial vehicle markets. Key products include manual and automated transmissions, clutches and complete hybrid power systems. Eaton has over 5,000 Hybrid Power Systems in use today with over 150 million miles of service. These vehicles have reduced overall fuel consumption by more than 6 million gallons. Eaton hybrid engineering and development center is in Kalamazoo, MI and Eaton's Kings Mountain manufacturing facility produces commercial vehicle transmissions and assembles Eaton's hybrid power systems and ships them to customers around the world.

U.S. Hybrid Medium- and Heavy-Duty Trucks: Manufacturing & Assembly and R&D Locations

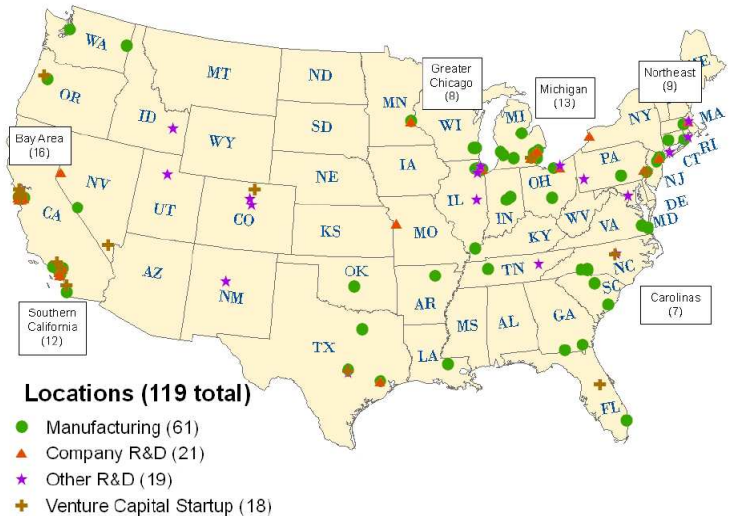


Source: www.cggc.duke.edu/environment/climatesolutions/greeneconomy_Ch9_HybridDrivetrainsforTrucks.pdf

Increased Demand for Hybrid Truck Technologies Benefit U.S. Advanced Battery Industry

As a central component of the hybrid-electric value chain, batteries have already emerged as a key global market. According to Duke University, the U.S. has at least 50 firms with 119 locations in 27 states performing manufacturing and research and development (R&D) that will represent 40% of the global market by 2015 (see map on left). The advanced battery value chain includes materials, components, and production of cells and battery packs, all of which would benefit from increased demand in hybrid truck technologies.

U.S. Lithium-ion Battery Plants and R&D Centers



Source: www.cggc.duke.edu/pdfs/Lowe_Lithium-Ion_Batteries_CGGC_10-05-10_revised.pdf

For more information please visit: www.edf.org/CleanTrucks