

Lightweighting Vehicles

Examples of carbon-composite structures and associated manufacturing equipment



The demand destruction of oil for transportation, as I wrote recently, is in train. (See [Houston, You've Got a Problem.](#)) One of the key factors in this trend is the electrification of light-duty vehicles. In order to fully realize this potential, though, it will be necessary for automakers to significantly reduce the weight of their cars and trucks.

Jim Motavalli, a venerable writer on the automobile industry for the NY Times, had a story yesterday on precisely this subject: [For Lightweight Cars, a Materials Race.](#) He lays out the fact "that reducing a car's weight by only 10 percent can improve fuel economy by 6 to 8 percent" and that there are three technologies that are competing for this key role in our reducing MPG: high-strength steel, carbon fiber composites and aluminum.

One prominent think tank that has done a tremendous amount of work on this is the Rocky Mountain Institute. One of their folks is cited in the article as representing that there is "a business case for using carbon fiber today, because it offers lower tooling costs and manufacturing processes, and significant fuel savings for the customer."

In the transportation sector of RMI's comprehensive and truly brilliant book and website, [Reinventing Fire](#) - which I use in my graduate class on Clean Tech - lightweighting is discussed at great length as being the critical tool we must use in order to achieve [oil-free surface transportation](#), a consummation devoutly to be wished. See their video on this here: