



## e<sup>2</sup> energy “Paving the Way”

### Background Essay

The largest share of oil consumed in the United States – nearly 70% -- is used by transportation. In America alone in 2007 cars will burn through 143 billion gallons of gasoline and, at current retail prices, fueling up will cost Americans up to \$360 billion a year. Cars are not just an American problem; they’re also a global one that’s only likely to grow. Currently there are 850 million cars and trucks traveling on the earth’s highways and it’s projected that by 2020 the global number of automobiles is going to grow to about 1.1 billion. If you took those cars, parked them end-to-end and wrapped them around the earth, they would go around it 125 times.

Because it is unlikely that the demand for automobiles will decrease, we need to find ways to make them more efficient and find alternatives to gasoline. Rising oil prices, hiking global temperatures caused by the emission of greenhouse gases, and growing conflict in the Middle East are three of the main problems caused, in part, by the world’s addiction to automobiles. While carpooling, relying on public transportation or simply driving less and walking more could help to solve these problems, they won’t take us far enough. In order to slow the negative effects of the transportation industry, we need to design with the future in mind; we need to design ourselves out of oil dependence.

In this episode, General Motors unveils *The Volt*, a super-hybrid vehicle and the fuel cell-powered *Sequel*, while technology firm Fiberforge shows off the latest in ultra-lightweight materials for car manufacturing. These are only a few of the advanced technologies being developed for the future of the automobile industry. Which solution or solutions will emerge as the most cost-efficient, energy-efficient and ultimately the most popular cars of the future?

For more information about the GM Volt, visit [www.chevrolet.com/electriccar](http://www.chevrolet.com/electriccar)

For more information about the GM Sequel, visit [www.gm.com/company/gmability/adv\\_tech/400\\_fcv/index.html](http://www.gm.com/company/gmability/adv_tech/400_fcv/index.html)

For more information about FiberForge, visit [www.fiberforge.com](http://www.fiberforge.com)



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### PRE-VIEWING QUESTIONS

1. What types of energy currently power cars? What types of energy show promise for powering cars in the future?
  2. What are the challenges of fueling cars on gasoline, both from an environmental and political perspective?
  3. What percentage of the gasoline in a car do you think is used to move it forward?
  4. It is often said that people “love their cars”. What do cars represent in our society? How dependent are you, your family and your city/town on automobiles? Do you use other forms of transportation?
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### POST-VIEWING QUESTIONS

1. What is a hybrid vehicle and how does it function? What are the positive aspects of owning one? Negative aspects?
2. What problems do we currently face due to our society’s dependence on oil? Are there benefits behind our current system?
3. How could using lightweight materials to manufacture cars help the environment?
4. Why wouldn’t every car manufacturer want to use lightweight materials right now? What are some of the risks with being the first company to use a new technology? What are some of the benefits of being the first?