

# The Future of the Automobile – Winter 2010/2011

## Electric Mobility – What is Missing?

A recent poll shows that by far the majority of Americans believe that it is important to expand the use of electric vehicles<sup>1</sup>. However, analysts expect that electric vehicles will have only a 2% to 3% share of the new-car market in 2020<sup>2</sup>. (see also reverse)

This situation will be the basis for the class this winter quarter. We want to find out why there seems to be a disconnect between what consumers think about the future of mobility and how they make their personal mobility choice. This class will look at the different aspects of technology, business, human factors, environment, and policies regarding electric mobility to find out if there is an ultimate truth about electric mobility. The concept of this course is to have guest lectures to provide the background and have students formulate their thoughts to prepare the discussion in class. Students should have a basic background in engineering, social sciences, business, or law. This course should provide the students with the ability to discuss automotive topics and put them in an interdisciplinary context

<b>Instructors</b>	Sven Beiker, Chris Gerdes
<b>Time</b>	Tue, 12:15-1:05PM
<b>Location</b>	Building 550 (Peterson Laboratory), Room 200
<b>Format</b>	Open seminar; guest lectures from industry and academia; students discussing automotive topics based on lectures and brief assignments
<b>Level</b>	Advanced undergrads or beginning grads
<b>Grading</b>	1 unit, S/NC, based on individual input to the course (70% attendance minimum) For satisfactory, students needs to submit at least two (2) one-pager essays that will be used in the seminar discussion (see below). The one-pagers are due on the day before the actual seminar discussion (see assignments for details).
<b>Schedule</b>	<b>Jan 4</b> Instructions (Syllabus, Assignments, Background) <b>Jan 11</b> Electric Vehicles – Classification, Concepts, Specifics, Examples <b>Jan 18</b> First Market Releases to test EVs and Consumer Response / Behavior <b>Jan 25</b> Student Assignment, Seminar Discussion (What is Missing?) <b>Feb 1</b> Engineering / Design: Battery Technology Today and Tomorrow <b>Feb 8</b> Business / Economics: Vehicle Cost, Cost of Operation, Business Models <b>Feb 15</b> Sociology / Psychology: Range Anxiety – Real or Imagined <b>Feb 22</b> Energy / Resources: Are EVs “The Solution”? <b>Mar 1</b> Policies / Politics: Incentives, Regulation, Mandates, Taxes <b>Mar 8</b> Student Assignment: Review your own assignment from Jan 25 <i>(all dates and topics subject to change)</i>
<b>Office Hours</b>	After class and upon request
<b>Contact</b>	Sven Beiker, Bldg 550 / Rm 131, <a href="mailto:beiker@stanford.edu">beiker@stanford.edu</a> , 736-1504

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<sup>1</sup> Energy and Environment Study 2010, Market Strategies International, Livonia (MI), November 2010

<sup>2</sup> “Are Americans Willing to Try Electric Cars?”, The Wall Street Journal, Dec 1, 2010 (see also reverse)

## Are Americans Willing to Try Electric Cars?

The Wall Street Journal - December 1, 2010

By Jonathan Welsh

While most Americans say electric vehicles are an important way to reduce our dependence on foreign oil, relatively few are willing to try them. That's one of the findings in a survey by Market Strategies International, a research and consulting company with a focus on several industries including energy.

On the positive side, the number of respondents who said they see themselves driving an electric



car 10 years down the road is still higher than some of the more optimistic estimates coming recently from industry analysts and car-company officials. This is a promising sign for car makers like Chevrolet and Nissan as they prepare to roll out new electric models. The Chevrolet Volt and Nissan Leaf are expected to go on sale later this month, with more models coming in the next two years.

About 13% of U.S. drivers say they can see themselves driving electric cars within 10 years. – Getty Images

According to the firm's Energy + Environment, or E2 study, 70% of people surveyed said they thought the expanded

use of electric vehicles is a vital part of strategies to reduce the use of fossil fuels. However, only 43% said they could see themselves driving an electric car in 10 years. Within that group, 13% said they were "very likely" to buy an electric car.

Jack Lloyd, vice president of the research company's energy division, says he puts a lot more stock in the people answering "very likely" because they are typically far more likely to follow through. Still, 13% is a promising forecast for the electric-vehicle segment. Analysts have said electrics will have 2% to 3% of the new-car market and even Carlos Ghosn, head of Nissan and Renault and a big proponent of electric vehicles, has predicted a 10% share by 2020.

If car makers want electric vehicles to grow beyond their current novelty status, and become a reliably profitable part of the business, they will have to help consumers get over range anxiety and other worries. Lloyd says 28% of the people surveyed said range and battery life were the main obstacles keeping them from considering electrics. Another 20% were concerned about the availability of charging stations and 9% were bothered by the high cost of the vehicles.