

Consumer Adoption of EVs, PHEVs, etc.

AM Breakout Session
Small Scale Experiments / Phase 1

Outline

Introductory material and context

Discussion summary: session V1

Discussion summary: session V2

Recent EV headlines

Article from **future tense**
ASU | NEW AMERICA | SLATE

Can the Electric Car Survive?

Sales are low and companies are struggling. Is the problem premature innovation?

By **Steve LeVine** | Posted Tuesday, March 13, 2012, at 6:00 AM ET

Detroit Free Press

Volt production on hold for 5 weeks

By **Brent Snavely**

Mar 12, 2012

USA TODAY

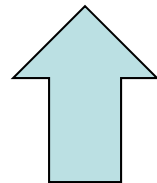
Even with \$4 gas, electric cars face dark days

By Brent Snavely and Chrissie Thompson, USA TODAY and the Detroit Free Press

Recent EV headlines

GM says the Volt and other plug-ins just need time to catch on with consumers.

Give electric vehicles time, experts say. The market for plug-in electric vehicles will eventually develop as prices come down and driving ranges improve, some in the automotive industry say. It needs time for the strangeness of plugging in your car to fade away, they say.



Mar 12, 2012

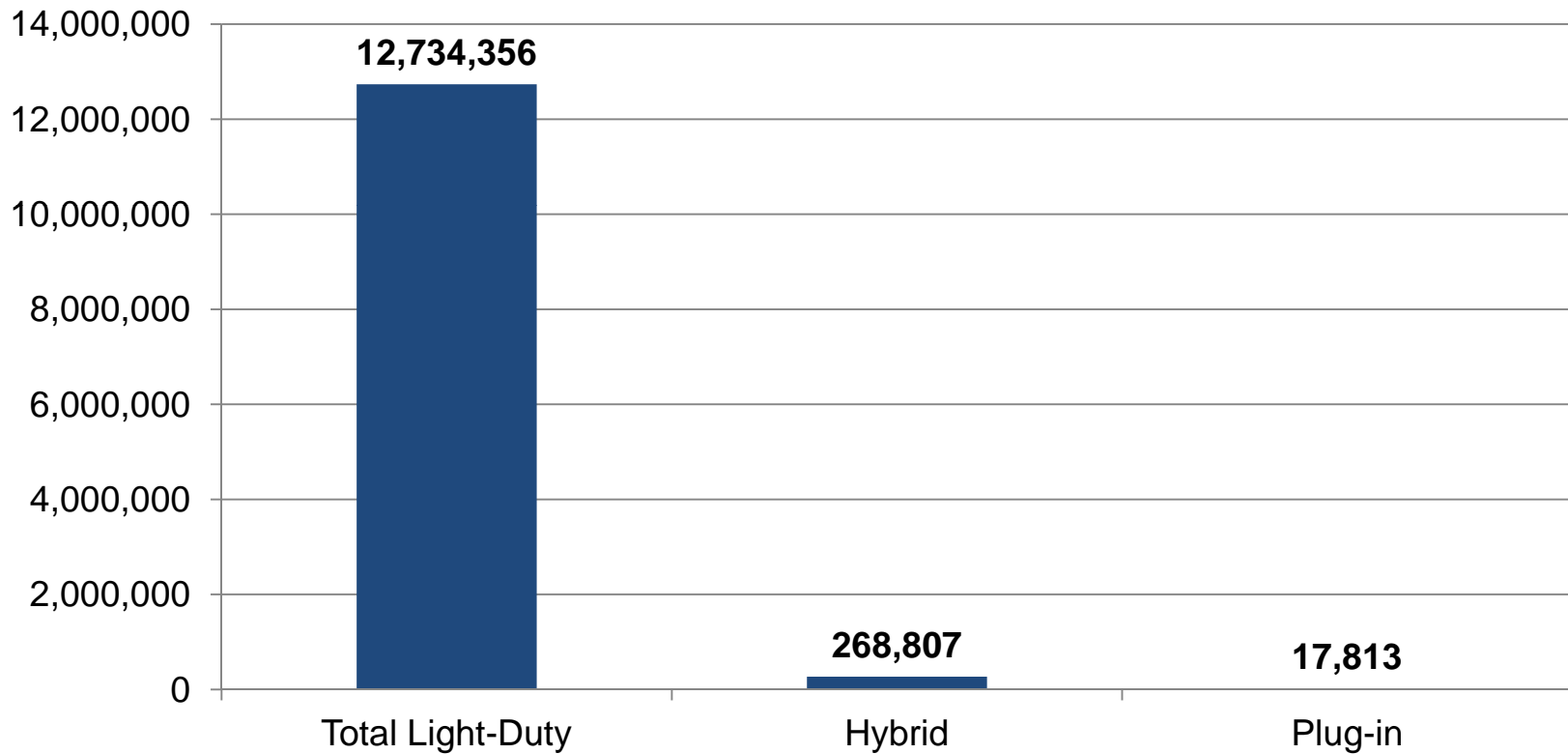


Even with \$4 gas, electric cars face dark days

By Brent Snavely and Chrissie Thompson, USA TODAY and the Detroit Free Press

Sales numbers confirm that adoption of new vehicle technologies has been gradual

2011 US Light-Duty Vehicle Sales



Source: Autodata/Hybridcars.com

Why have EVs, PHEVs, etc. been adopted slowly?

- Cost
- Battery performance
- Lack of charging infrastructure

| Chevy Volt | Now | What if? |
|-------------------|----------|----------|
| Unsubsidized cost | \$40,000 | \$25,000 |
| EV range (mi.) | 40 | 50 |

Cost will decrease and performance will improve.
Is that enough for broader adoption?

Objectives of this session

- Brainstorm Phase 1 research projects that:
 - ▶ Propose a creative modification to how consumers think about alternative vehicle purchases
 - ▶ Create hardware/software to deliver the modification
 - ▶ Measure the efficacy of the modification
- Define and begin to address key questions
 - ▶ How well do we know the challenges?
 - Long purchase cycle, infrequently expressed preferences
 - ▶ Is this something more than doing marketing for OEMs? How?
 - ▶ How can we work with the existing infrastructure?
 - ▶ Will this have an impact?

Key Project Attributes

- Theory-Based
 - ▶ Does the project build on existing findings in transportation behavior or other areas of behavioral science?
- Measurable
 - ▶ Can the project demonstrate a change in vehicle adoption (not just purchase intent)?
- Rigorous Protocol
 - ▶ Does the project utilize sound techniques for intervention and data collection?
- Scalable
 - ▶ Are the techniques extensible to large populations?

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Morning Breakout: Main Themes

- Access to “tribal knowledge:” visualizing oneself in new vehicle type
 - ▶ Connect consumer with early adopters online (social media) or in person (community-based effort)
 - ▶ Reduce effortful assessment of new vehicle; be part of group (or not left behind)
- Vehicle as “avatar:” expression of self identity
 - ▶ Create new vehicle meanings relevant to new buyers (patriotism)
 - ▶ Enhance vehicle’s expressive capabilities in real world (CO₂ stickering) or virtual one (vehicle choice or energy use on Facebook)
 - ▶ Enable creation of own “tribe” (social media connection to new members)
- Better assessment of vehicle value pre-purchase
 - ▶ Collect travel/trip data and allow “virtual adoption;” smart phone as mobile smart meter to track vehicle travel information
 - ▶ Other trial techniques: rental cars?

Morning Breakout: Main Themes

- Making EV default choice
 - ▶ In existing online shopping process
 - ▶ Perhaps new purchase process is needed (connect with early adopter “coach”)
- Lessons learned from personal electronics adoption
 - ▶ Leverage these findings in developing interventions for vehicle buyers
- Combining themes in potential project
 - ▶ Collect vehicle travel data using smart phone of carbuyer
 - ▶ Use data to enable simulation of EV ownership: where driving, where charging
 - ▶ Combine travel data with other personal data from potential buyer (demographics + locations)
 - ▶ Connect potential buyer with similar early adopters – bring them into the tribe, at least on a trial basis
 - Early adopter with similar age, interests that also belongs to your health club

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New ideas to reduce barriers to EV/hybrid adoption

| Concept |
|--|
| “Prius Church” (story told re: gathering of interested people at a dealership to discuss the Prius); could include incentives for EV owners to take people for test drives |
| Change info on the car itself: sticker vs. QR code that loads info on cell phone |
| Online research: change the metrics we use to compare. \$/mi and mi/\$ may not even be the metrics people react to |
| Change the experience at the dealership: some consumers know more than salespeople |
| Find more visceral motivators, such as air quality (is this the reason for success in CA)? |
| Now: one could ask Prius owners in person about their experience. Future: Could this be conveyed this online? |
| Traditional car owner clubs meet Facebook: you’re entered when you buy the car |
| Make doing research more like Amazon: tailored to you (but be careful about rational vs. rationalized choices) |
| Address uncertainty: Hyundai’s warranty (in part) allowed them to gain market share very quickly |

Things to consider in Phase 1

- Biggest challenges: building relationships with dealerships. A sampling challenge will be finding people who are going to be buying cars in next year
- Stakeholders needed: need an online community platform such as Facebook or Google. It is not as convenient if an additional online login is required.