

EV Everywhere Framing Workshop

Report Out & Lessons Learned

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**EV Everywhere:
A Grand Challenge in Plug-In Electric Vehicles**

Initial Framing Document

White Paper to Explore
A Grand Challenge in Plug-In Electric Vehicles



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Disclaimer: The purpose of this paper is to facilitate discussion among participants in the "EV Everywhere Grand Challenge" Workshops. This paper does not represent, reflect, or endorse an existing, planned, or proposed policy of the U.S. Government, including but not limited to the U.S. Department of Energy. The U.S. Department of Energy does not guarantee the accuracy, relevance, timeliness, or completeness of information herein, and does not endorse any sources used to obtain this information. As such, this paper is not subject to the Information Quality Act and implementing regulations and guidelines.

- Framing Workshop was the first of 5 workshops this summer
- Framing document
 - Draft: Facilitate discussion among participants
- Recruit the best and brightest American scientists, engineers, and businesses to tackle this electric vehicle challenge
- Re-evaluate and refine the existing technical goals for increasing performance and cutting costs

| Topic | Date | Location |
|---|---------|-------------|
| Kick-Off Framing Workshop | June 21 | Dearborn |
| Electric Drive Components | July 24 | Chicago |
| Advanced Batteries | July 26 | Chicago |
| Consumer Behavior and Charging Infrastructure | July 30 | Los Angeles |
| Lightweight Vehicles and Structures | TBD | TBD |

The EV Everywhere Challenge Involves All of DOE

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- Benchmark: 5-passenger vehicle
- Majority of vehicle-miles-traveled powered by electricity under standard drive cycles
- 5-year simple payback vs. equivalent gasoline powered vehicle
- Any “vehicle range-charging infrastructure” scenario to be considered must credibly allow for the majority of American consumers to be willing to purchase the PEV as a primary vehicle
- No reduction in grid reliability

1. **PHEV40** with limited fast-charge infrastructure,
2. **AEV100** with significant intra-city and inter-city fast charge infrastructure, and
3. **AEV300** with significant inter-city fast charge infrastructure

Vehicle-level analysis provides a starting point for setting EV Everywhere technical targets for these vehicles.

Plenary Session

- Presentations by senior leadership
 - Keynote address by Secretary Steven Chu
 - Acting Undersecretary Sandalow
 - EERE Assistant Secretary Danielson
- Analysis Presentation
- Panel Sessions





OEM Panel: Key Challenges in Plug-in Electric Vehicles

- Moderator: John McElroy, Vehicle Journalist, Autoline
- Nancy Gioia, Ford Motor Company
- Tony Posawatz, General Motors Company
- Mark Perry, Nissan

Stakeholder Panel: Plug-in Electric Vehicle Opportunities

- Moderator: John McElroy
- Dennis Beal, FedEx
- Andrew Brown, Delphi Automotive
- Robbie Diamond, The Electrification Coalition
- Bart Riley, A123 Systems
- Mike Rowand, Duke Energy

1. Batteries
2. Drivetrain (Power Electronics and Motors)
3. Charging Infrastructure/Fast Charge/Grid Integration
4. Vehicle Design/Lightweighting
5. Consumer Acceptance and Public Policy

Major Findings:

- General enthusiasm about EV Everywhere
- Focus on all types of electric drive
- Targets
 - Good inputs, but further discussion needed
 - Targets for each area will be the focus of the remaining workshops
- In general, framing workshop was valuable, but did not provide the required technical depth now sought in the remaining workshops

- One of the stronger breakout sessions
- Themes:
 - Need more consumer education to combat public misconceptions of EVs, and that should begin with consumers who will be buying EVs in 10 years
 - Need nationwide standardizations of charging stations, signage, and payment
 - Importance of workplace charging
 - An interest in government taking the lead in education campaign, up-front incentives, and EV integration into fleets
 - More research done on EV consumer behavior - behavior change is a barrier
 - Payback time of 5 years may be too long for typical consumers
 - Need for more technology to interface with driver for higher comfort level, ie. driver awareness of state of charge
 - “Electric miles driven” is still vague
 - EVs should not just be a replacement product, they need value added components

- Need to emphasize the need for new ideas sought through the breakout sessions
- Overall goal of beginning public dialogue and engagement was successful

