Transportation Behavior and New Technology

Jonathan Burbaum

March 16, 2012

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Agenda

Time	Session	Presenter
7:30 – 8:00 AM	Registration and Continental Breakfast	
8:00 – 8:15	Welcome and Opening Remarks	Arun Majumdar
8:15 – 8:35	Workshop Overview and Objectives	Jonathan Burbaum
8:35 – 9:25	Behavioral Economics Overview	Dan Ariely
9:25 – 9:55	Electric Vehicle Adoption Overview	Tom Turrentine
9:55 – 10:25	Alternative Fuels Overview	David Greene
10:25 – 10:40	Coffee Break and Report to Breakouts	
10:40 – 12:30 PM	Morning breakouts: Vehicle and Fuel Tracks (Brainstorming)	ALL
12:30 – 1:00	Lunch Presentation: Stanford Behavioral Project &Lessons Learned	Carrie Armel
1:00 – 1:10	Solar Energy Evolution and Diffusion Studies (SEEDS): RFI from SunShot	Adam Cohen
1:10 – 1:40	Reports from Morning Breakout Sessions	ARPA-E
1:40– 1:50	Instructions for Afternoon Breakout Sessions	
1:50– 2:05	Coffee Break and Report to Breakouts	
2:05– 4:00	Afternoon breakouts: Vehicle and Fuel Tracks (Practical Solutions)	ALL
4:00– 4:15	Break, Prepare for Report Back	
4:15– 4:45	Report Back from Afternoon Breakout Sessions	Select Breakout Leaders
4:45– 5:00	Concluding Remarks	Jonathan Burbaum/All

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Outline

- Objectives of the Workshop
- The Energy Market in Personal Transportation
- The Adoption Problem
- Technological Solutions/Toolkit
- Example Project
- ARPA-E's "Vision"

Objectives of this workshop

> To guide ARPA-E as it considers a program in Transportation Behavior and New Technology
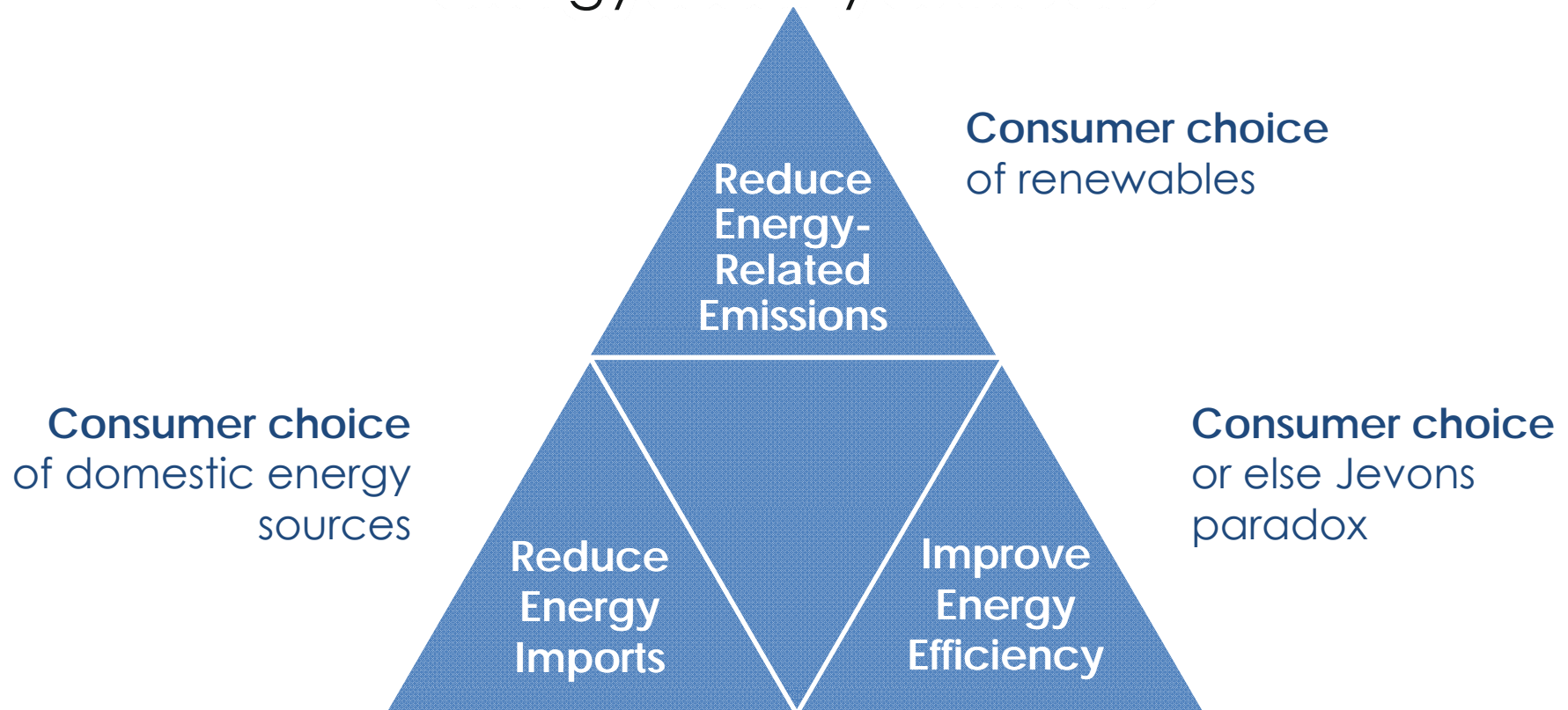
1. Brainstorm technical + behavioral concepts that could transform energy in personal transportation

    [Do these concepts fit ARPA-E?]

2. Introduce people of different disciplines and of different organizations to seed potential collaboration

3. Determine areas that <u>are</u> and <u>are not</u> of interest

4. Quantify the potential impact on ARPA-E mission areas

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What we are NOT here to do

- Recommend policy changes

- Advocate technologies such as E85 or PHEVs

- Specify a basic research program

- Replace or replicate private sector marketing

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Consumer Choice Impacts ARPA-E's Mission

Enhance the economic and
energy security of the U.S

Consumer choice
of renewables

Reduce
Energy-
Related
Emissions

Consumer choice
of domestic energy
sources

Consumer choice
or else Jevons
paradox

Reduce
Energy
Imports

Improve
Energy
Efficiency

Ensure U.S. technological lead in
developing and *deploying* advanced
energy technologies

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Expenditures per US Household
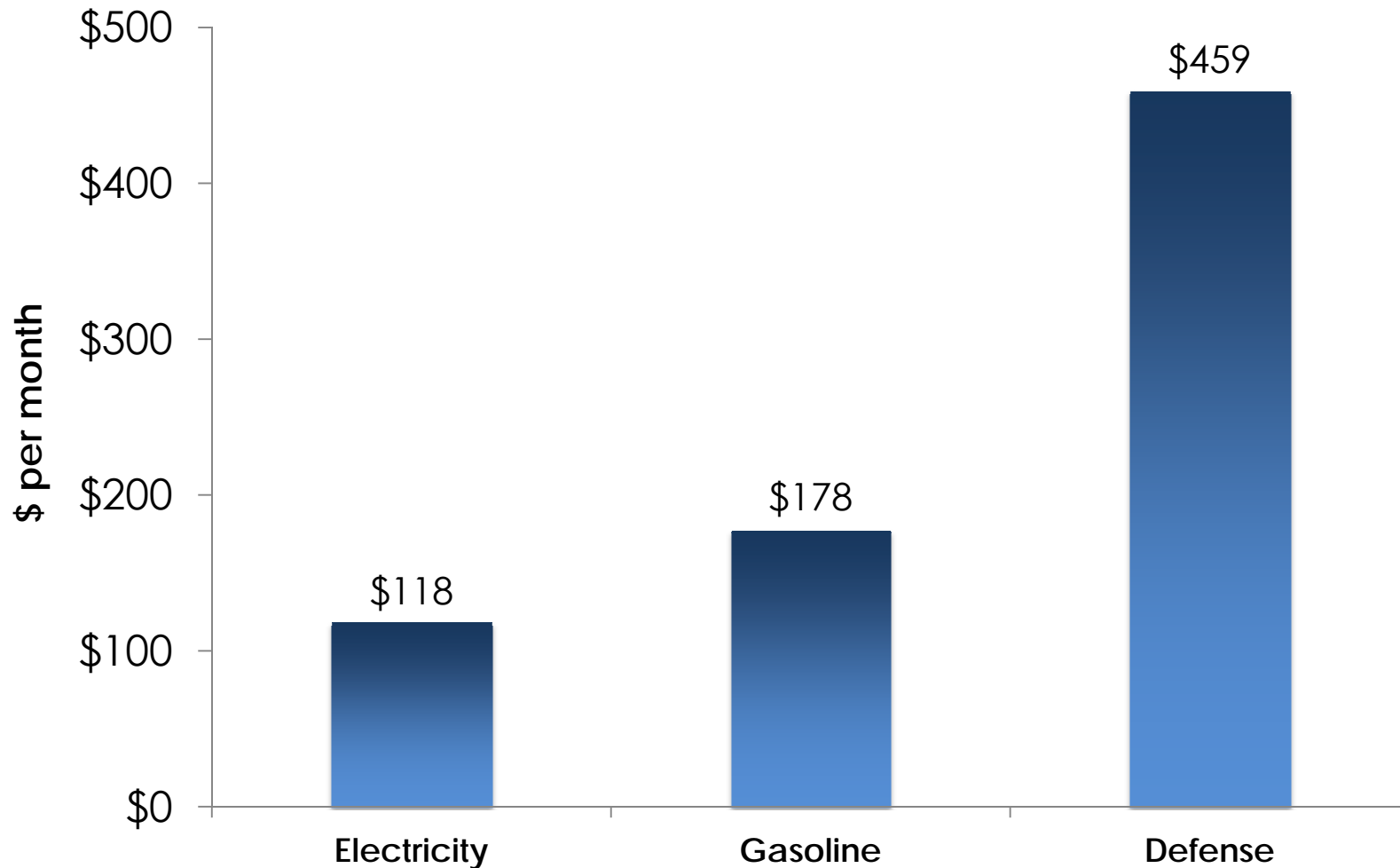
- Are all considered "essentials"
  - ▶ Inelastic demand in the short run
  - ▶ Volatility affects discretionary spending disproportionately

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Adoption of Transportation Technologies

"Hybrid cars have been on the US market for nearly 10 years…[y]et, there are fewer than 2 million hybrids in a US fleet of approximately 230 million vehicles."

"Confronting Slow Rate of Auto Technology Change", HybridCars.com, May 28, 2009.

Of the 7-8M flex fuel vehicles in 2009, only 500k were regularly fueled with E85, and most of those were fleet vehicles (2011 Transportation Energy Data Book, DOE/EERE)

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