

Plug-In Hybrid Electric Vehicle (PHEV) Value Proposition Study Workshop

Breakout Session # 4 Report
Value Propositions with Vehicle-to-Building

December 12, 2007



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1. Emergency Back-Up

- **What is being offered?**
 - Back-up power
 - Battery offers short term UPS function (<1 hour)
 - Engine provides longer term power generation (dependant on fuel availability)
 - Mobile power
- **What is the benefit to the consumer?**
 - Peace of mind, emergency power supply
 - Small business / residential
 - Preservation of critical loads/assets for companies that cannot afford other backup
 - Not likely to be of value to larger businesses which already have emergency generators.



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1. Emergency Back-Up (cont'd)

- **What is the value?**
 - \$500-5,000 generator for major back-up supply.
- **Barriers**
 - Commercial is limited in scale to customers who don't already have back-up power supplies.
 - Code compliance will have an impact on cost.
 - PHEV has similar barriers to portable generator (such as venting).
 - Because of the mobility of PHEV, available back-up power will require two modes of transportation.



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1. Emergency Back-Up (cont'd)

- **Incentives**

- Advertise features to green buyers - “PHEV-Ready Home”

- **Implementation**

- This idea of back-up power supply with PHEV could move directly to demonstration programs.



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2. Building Power Management

- **What is being offered?**
 - Reduced demand charge of commercial buildings
 - Provides auxiliary capacity
 - Building serves as aggregator
- **What is the benefit to the consumer?**
 - Possibly free parking/ payment for parking
 - Reduce electric bill
- **What is the value?**
 - Varies by customer and location
 - \$.50- \$1/ kWh is an assumption if building is on peak rate structure



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2. Building Power Management (cont'd)

- Barriers
 - Diversity of response (percentage of vehicles that are available on a reliable basis)
 - Rate structures (can be both a barrier and an incentive)
 - Lack of on-site energy management, especially in small commercial
 - Retrofitting an existing garage



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2. Building Power Management (cont'd)

- Incentives
 - To the vehicle owner
 - Free parking from businesses
 - Free recharging
 - To the building owner
 - Rate structures to support building demand reduction



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3. Optimization of On-site Renewables

- **What is being offered?**
 - Energy storage (intermittent vs. base load)
- **What is the benefit to the consumer?**
 - Way to take advantage of the excess production of the on-site energy (e.g. wind at night when there is no or minimal building load)
 - Use renewables to charge the PHEV
 - Parking decks with PV



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3. Optimization of On-site Renewables (cont'd)

- **What is the value?**
 - Image branding (Vehicle to Business, V2B!)
 - Possible increase in sales from the green market
 - Preferred parking for the vehicle owner
 - Helps in the movement toward zero-net energy buildings
- **Barriers**
 - Infrastructure cost
 - Payback period of PV



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3. Optimization of On-site Renewables (cont'd)

- **Incentives**

- **Government policies**

- Tax credits for businesses that use renewables continue/improve.
 - CAFE standards are easily met with PHEV.
 - Have the military as an early adopter for PHEV; government lead by example.

- **Municipal carports available for renewables / plug-in hybrids**



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