

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

Breakout Session # 1 Report  
Unidirectional Electric Flow

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# Unidirectional Electric Flow Value Propositions

## 1. Value Streams Created by Unidirectional Electric Flow

- Entity providing value: Utilities, manufacturers, consumers
- Nature of deal: Monetary and non-monetary benefits to each provider
- Consumer benefit: Reduced utility rates and convenience with or without Smart Metering



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# Unidirectional Electric Flow Value Propositions

## 2a. Government Regulation

- Entity providing value: Federal government
- Nature of deal: Establish a floor on oil prices
- Consumer benefit: Investor assurance of long term commercial viability of PHEVs and electricity as a fuel

## 2b. Government Provided Financial Incentives

- Entity providing value: Any tier of government
- Nature of deal: Consumer receives monetary benefits
  - Tax credits
  - Fee-bates
  - Reduced costs of government services (healthcare, education, social security, etc.)
  - Driving access in “congested areas”
- Consumer benefit: Money & convenience

## 2c. Government-Created Market

- Entity providing value: Federal government
- Nature of deal: Government creates a market for carbon
- Consumer benefit: Trading carbon credits for money



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# Unidirectional Electric Flow Value Propositions

## 3. Parking Convenience Provided to Consumers

- Entity providing value: Businesses, airports, municipalities
- Nature of deal: Parking privileges and convenience
- Consumer benefit: Parking discounts, closer parking, charging access

## 4. Enhanced Vehicle Capabilities

- Entity providing value: Automobile manufacturing industry
- Nature of deal: Allow consumers to choose features/models
  - 20 mile / 40 mile vehicle
  - Pre-heat; Pre-cool
  - Ancillary power (camping, tools, tailgate parties)
  - Flexible charging-capable (110V / 240V) vehicles for convenient charging
  - Lightweight vehicles
- Consumer benefit: Conveniences of advanced technologies



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# Unidirectional Electric Flow Value Propositions

## 5. Charging Convenience

- Entity providing value: Airports, businesses, new housing, municipalities,
- Nature of deal: Entities provide PHEV owners with charging stations (possibly government sponsored)
- Consumer benefit: Consumers receive increased access to PHEV charging stations

## 6. Driving Convenience

- Entity providing value: Government
- Nature of deal: Highway tolls reduced & EZ-Pass technology provided for free to consumers
- Consumer benefit: \$\$



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# Unidirectional Electric Flow Value Propositions

## 7. Purchasing Convenience

- Entity providing value: Automotive dealerships or OEMs
- Nature of deal:
  - Test fleet available to try out PHEV
  - Trading  $\uparrow\downarrow$  incentivized & made easy
  - Incentives to sales people to sell PHEV
- Consumer benefit: Convenience and education

## 8. Social Responsibility

- Entity providing value: Government, OEMs, utilities, social pressure
- Nature of deal: PHEV clubs created by entities to provide non-financial benefits:
  - Special PHEV License Plates
  - Invitations to PHEV events/parties
  - PHEV benefits publicly advertised (consumers feel good)
    - Environmental
    - Reduced gasoline use
    - Time savings
- Consumer benefit: Sense of pride and community



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# Unidirectional Electric Flow Value Propositions

## 9. Financial Savings

- Entity providing value: Businesses, housing developers, OEMs
- Nature of deal: Various \$\$ incentives
  - Corporate PHEV fleets available to employees
  - Battery warranties (OEMs, utilities)
  - Reduced vehicle costs (subsidized insurance, maintenance, etc.)
  - Provide NG generators to allow consumers to choose between NG & electricity from grid (co-generation)
- Consumer benefit: \$\$



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# 1. Unilateral Flow (w/o Smart Metering or with Smart Metering)

- What is the value stream for each (impact of the value proposition; \$; metrics):
  - New customer to utility, new product to consumer, limit charge during peak, add capability to meet demand, smart car, better use of capital
  - Better decision making, high probability of certainty, enable load management w/unidirectional flow, greater penetration of renewables (wind to wheels), reduced cost of batteries (increased demand), local management
- Who receives the value (beneficiaries):
  - Infrastructure planners, utilities, customers, distributors, power brokers
  - Consumers manage personal power usage, utility (increased power reliability / assurance & increased power quality), battery manufacturers
- What data is available to support this idea (studies, resource guides, contacts, etc):
  - Sales & utility data, cost of expanded infrastructure (initially / tipping point)
  - Studies, demonstrations



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# 1. Unilateral Flow (w/o Smart Metering or with Smart Metering)

- What are the evaluation methods to measure impact of implementing this idea/scenario?
  - Baseline GHG measures, emission data from utility, data from vehicles
  - Direct studies
- What are the barriers associated with implementing each scenario?
  - Cap & Trade regulations, capacity (generation & distribution), \$\$ to expand infrastructure, possibility of excessive localized load / reliability issues
  - Compliance verification, consumer apathy, consumer dissatisfaction due to lack of control of charging, addiction to convenience, getting people to charge at the right time
- What incentives should be put in place to enable the establishment of this value proposition?
  - Smart Cars, Smart Meters, push developments of standards to define interface between plug & Smart Car
  - Deals to consumers from utilities, \$\$ of green power < \$\$ of gasoline (more green power), incentives for off-peak charging, billing scheme



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## 2. Government (regulation, financial incentives, markets)

- What is the value stream for each (impact of the value proposition; \$; metrics):
  - Oil displacement, energy security, air quality, dollars for drivers, netting out cost of car
- Who receives the value (Beneficiaries):
  - Society, consumers, carbon market participants
- What data is available to support this idea? (studies, resource guides, contacts, etc):
  - Existing economic reports (2004), existing reports: impact of tax credits / incentives on HEVs



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## 2. Government (regulation, financial incentives, markets)

- What are the evaluation methods to measure impact of implementing this idea/scenario?
  - Number of vehicles sold, advanced metering / sampling percentage of cars, surveys, fuel consumption
- What are the barriers associated with implementing each scenario?
  - Confidentiality, shifting policy directions, petroleum inertia, cost, tracking privileges
- What incentives should be put in place to enable the establishment of this value proposition?
  - Good politics



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# 3. Parking Convenience

- What is the value stream for each (impact of the value proposition; \$; metrics):
  - Saves time, saves money, safety, physical convenience, feel special
- Who receives the value (Beneficiaries):
  - Consumer, corporations (“green” responsibility), cities (air quality)
- What data is available to support this idea? (studies, resource guides, contacts, etc):
  - EV1, historical data @ LAX, BART, United Technologies Auction Data, Employee of the Month



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# 3. Parking Convenience

- What are the evaluation methods to measure impact of implementing this idea/scenario?
  - Surveys, common sense, company accountants, how quickly they sell / market penetration
- What are the barriers associated with implementing each scenario?
  - Limited premium spaces, irritated clientele, loss of government income, competition for parking from other technologies, cost, non-sustainable incentives
- What incentives should be put in place to enable the establishment of this value proposition?
  - Tax incentives to corporations, raise the cost of parking (be delicate and let the market drive itself)



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