The Challenge of Short Trips in the Vehicle Marketplace

Results of the NEV Demonstration

South Bay Cities Council of Governments

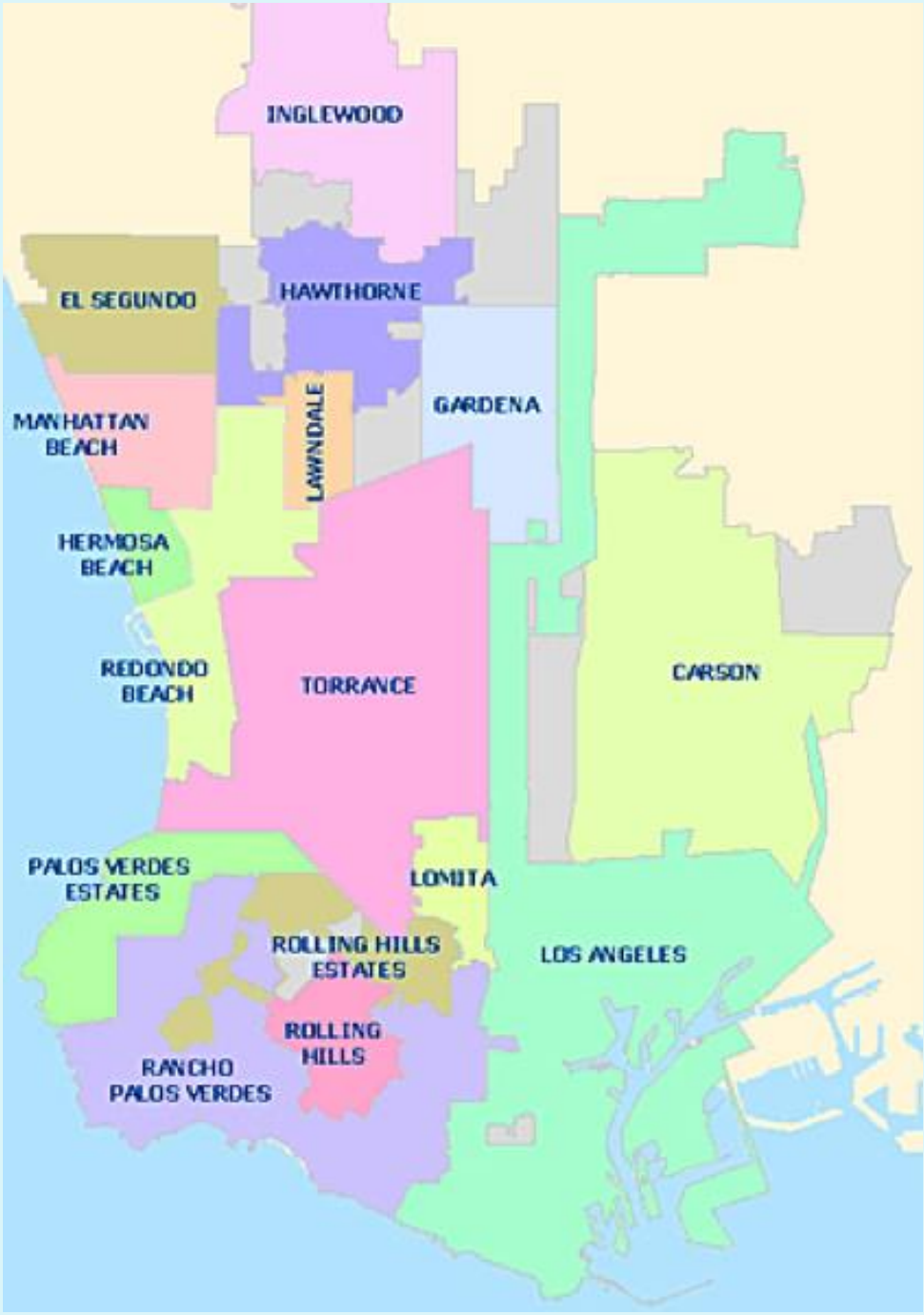
July 29, 2013

SOUTH BAY CITIES
COUNCIL OF GOVERNMENTS

15 cities plus
LA City &County

315,000 Households

600,000 Vehicles
285,000 Secondary



Demonstration Basic Facts

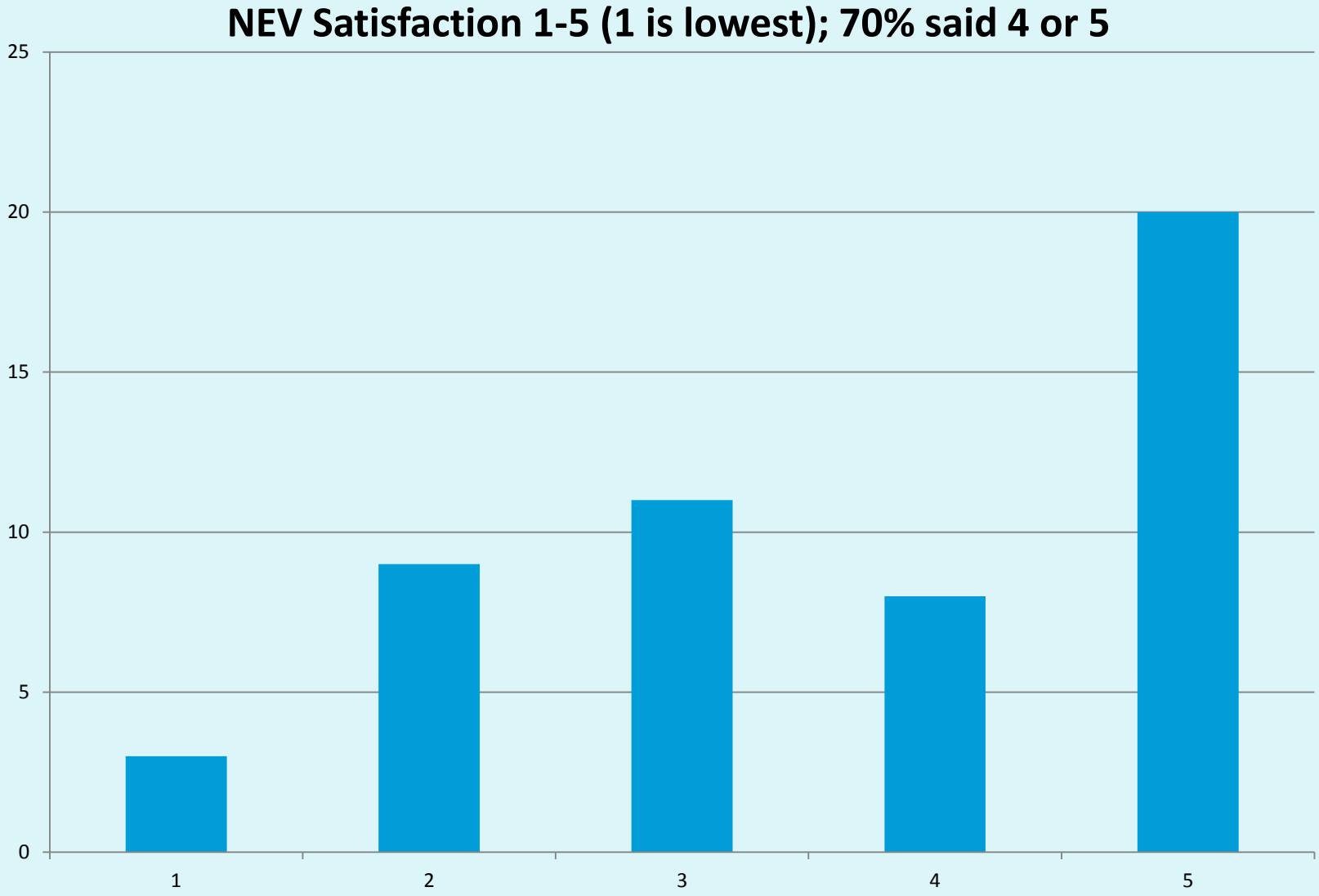
1. NEVs have a range of 25 miles; max speed of 25 MPH – specialized VS all purpose
2. Six vehicles loaned to households for a couple of months
3. 51 total participating households over 32 months of active demonstration
4. Vehicle use monitored by GPS on all NEVs and ICE vehicles in 37 households
5. Potential use as second vehicle in the household

Miles Sedan

Vantage CrewCab

GEM e4

Wheego Whip


NEV Satisfaction 1-5 (1 is lowest); 70% said 4 or 5
25
20
15
10
5
0
1
2
3
4
5

Findings

- Society would benefit from a robust market in slow (or medium) speed, electric local use vehicles (LUV)
  - Economy
  - Environment
  - Equity

Economic Benefits

- South Bay residents spend about $1.2 billion annually on gasoline
- NEV households reduced gasoline consumption by 19%
  - Potential annual savings in South Bay $230,000,000
  - Stimulate all other sectors – retail, entertainment, health care, education
- NEVs are a simple, low cost technology that charge on 110V

Environmental Benefits

- Air pollutants (NOx, CO2 etc.): Reduced by 18 to 27% per NEV household
- GHG emissions: Reduced by 18% per NEV household
- Lower priced ZEVs will speed the transition of the ICE vehicle fleet to ZEV

A South Bay Scenario
100,000 NEVs
36% of secondary vehicle fleet

- Would save over 10-15 million gallons of gas annually

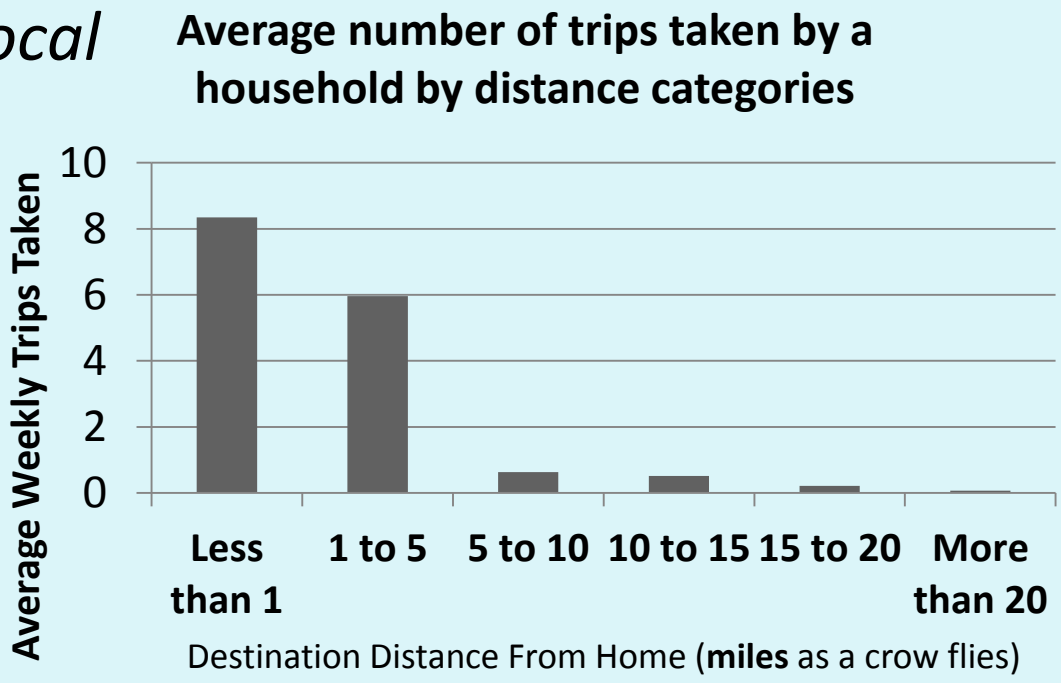
- Carbon emissions offset equal to planting over 3.5 million trees annually

Equity Benefits

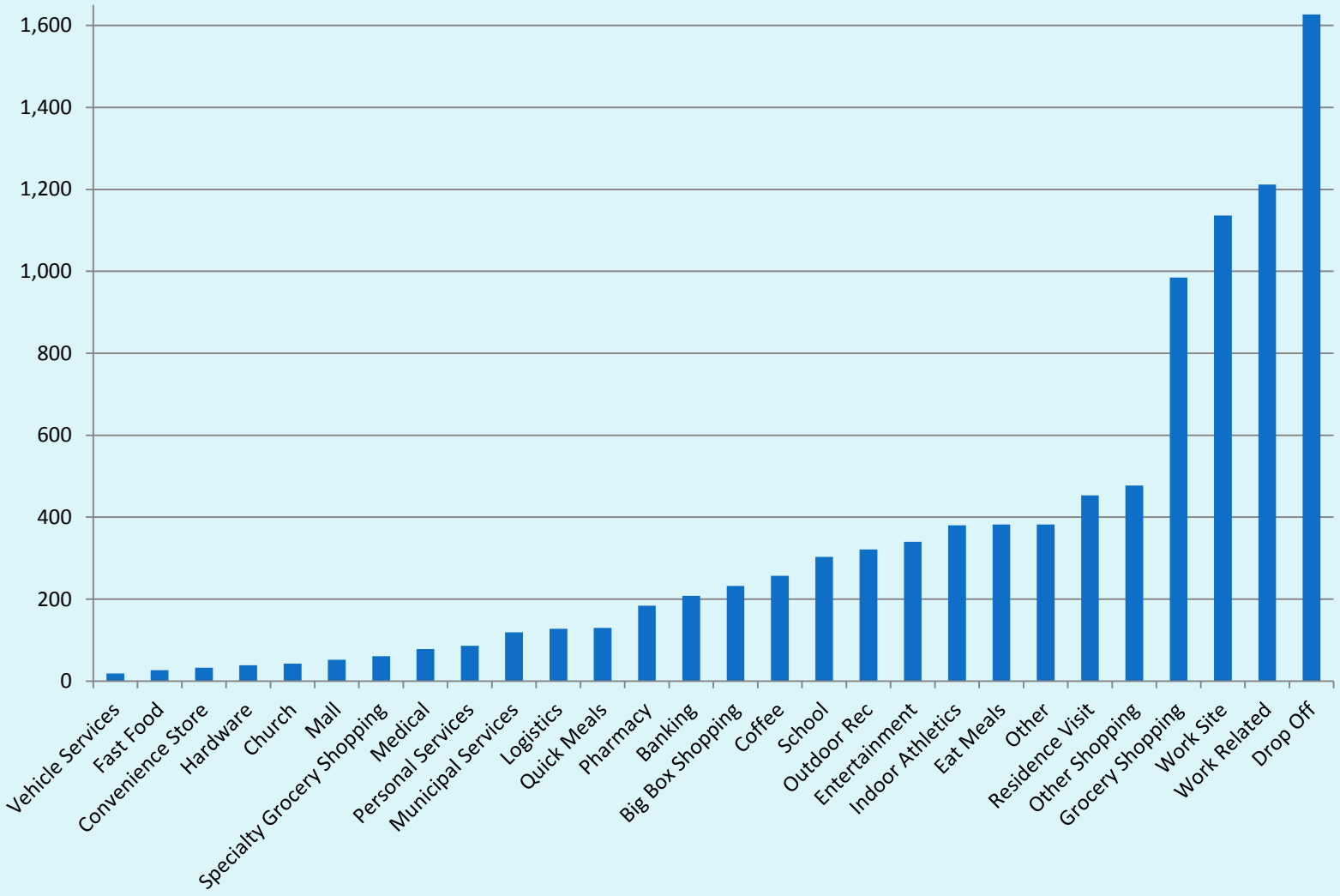
- PHEVs and full speed BEVs are being purchased almost exclusively by residents of the highest income zip codes in the South Bay
- Lower prices for ZEVs can expand the market to middle income households; and possibly to lower income neighborhoods through focused car sharing

Participants' NEV Use

- 22,000 total miles driven
- Average a little more than 5 miles per day/HH
- 19% of miles driven per HH
- 46% of round trips driven per HH
- *Most trips are hyper-local*
- Driven everywhere …



Destination Frequency in NEV



Consumers
Match Vehicle to Trip Length: Range Matching

Using the right vehicle to make the trip

0 – .5 Miles

Walking

0 – 10Miles

Short Range Modes:

NEV, Segway, EN-V, Bikes, Shuttles, Buses

≥ 10Miles

Long-Range Modes:

Autos, Bus Rapid Transit or Subway, Plug-in Hybrids

Barriers to NEV Adoption

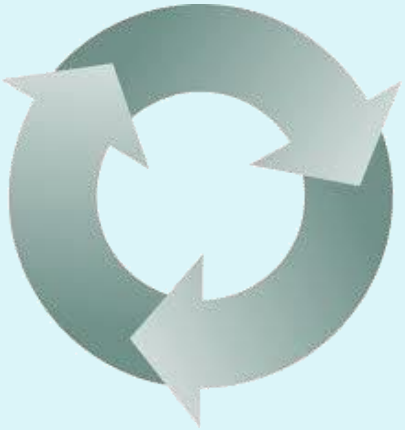
- Vehicles were not well made
  - Problems with low quality plastic parts
  - Unreliable electronic components
  - Construction issues – loose wiring, peeling headlights, rust
- There were design issues
  - Location/design of disconnect switch
- Vehicles were generally too expensive

New initiatives from several players are necessary for a robust LUV market to develop

CEC

CARB

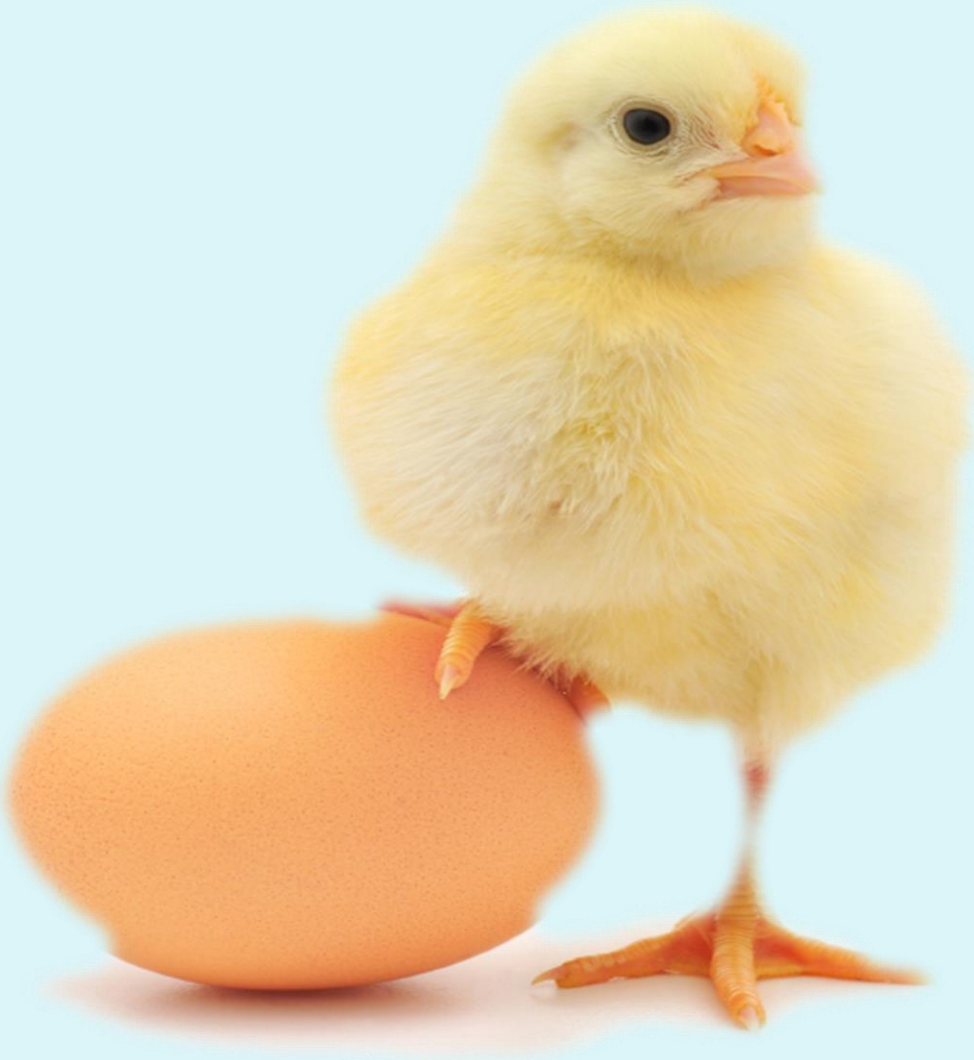
Auto Makers



Local Governments

Consumers

Land Developers



Local Governments Infrastructure

State of California Initiatives

- Clean vehicle rebate program
  - $2,500 for Leaf, Fit, Focus
  - $1,500 for Volt, Prius
  - $ 900 for GEM e2
- ZEV credit market (auto maker to auto maker)
  - 7 credits for Tesla S
  - 2.5 credits for Leaf
  - 0.3 credits for GEM

Market Size

- South Bay – 285,000 secondary vehicles
- Mature, built out suburbs -- Similar development pattern throughout LA County (SFV, SGV, south LA, Inland Empire) and Orange County
- And throughout California –about 9.5 million secondary vehicles in the state

Coming Supply Options

NEV Criteria: 25 MPH, 30 mile range

- Sturdy – reliable
- Promised range = actual range
- Amenities – Radio, power steering, comfortable seats
- Optional – doors, A/C, heater
- Price after subsidy – at $8K (69% would buy); at $6K (83% would buy)
- Local distribution channels – test drives available

Ideal Local Use Vehicle

- 35 MPH, 35 mile range
- Under $10,000

Questions for Manufacturers

- Is it feasible to produce well-built $8,000 - $10,000 LUVs?
  - Is it possible to reach this price point with a quality product?
  - How important are state **subsidies** to meeting this price point?
  - What role can **ZEV credits** play in meeting this price point?
- Many OEMs have short range vehicle projects underway…
  - Are these concept vehicles going to make it to production?
    - How long would it take to come to market in ideal conditions?
    - What body/configuration is most likely?
- Assuming meeting the price point is feasible…
  - Would your company pursue the production of LUVs?
  - What type of company is most likely to produce these vehicles?
  - What retail channels could you use to sell these vehicles?

Questions for Government

- Will state and federal governments provide subsidies to lower the price point to between $6K & $8K in order to reach a target penetration?
  - Do you believe that either or both of the cash subsidies and ZEV credits can be increased for small battery vehicles?
- Will local governments provide the slow speed infrastructure?
- How can slow speed local use vehicles become more effectively “institutionalized” in the AQMP, RTP, SCS, etc., particularly in the context of dense suburban development patterns?

Questions for All

- Will consumers match vehicle range to trip distance and purchase a specialized vehicle for local use?
  - If the vehicle price and quality are right?
  - If the local slow speed infrastructure is developed?

- Will the transition of the passenger fleet accelerate if it occurs simultaneously at both high and low ends?