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Marketing Clean and Efficient Vehicles: Workshop Proceedings



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# Marketing Clean and Efficient Vehicles: Workshop Proceedings

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## Workshop Synopsis

Moving the marketplace to clean and efficient vehicles is proving a complex, difficult, and long-term project. The first step, the development and commercialization of several technologies including electric, hybrid-electric, and alternative fuel vehicles is well underway. Now we must take the next step—transforming marketplace values. The challenges are formidable. There is the legacy of recent market trends. In recent years the automobile industry has focused on selling the size, power, and rugged image of truck-like vehicles; this strategy has produced some of their most profitable vehicles. Now, many consumers associate heavy, roomy, powerful, inefficient vehicle designs with images of the good life of recreation and adventure, the capacity to pick-up major home appliances at suburban superstores, or the ability to transport their child's soccer team. These same consumers are largely ignorant that light-duty trucks—vans, sport utility vehicles, and pickup trucks—are allowed by policy to be less efficient and more polluting per vehicle mile. Ironically, there is a probably a sizable contingent of self-described environmentally conscious buyers who drive large, four-wheel drive SUVs. In our own locale, it is common to see such vehicles proudly decorated with bumper stickers exhorting people to "Keep Tahoe Blue." (The reference is to efforts to maintain the lake's prized clarity, a problem that appears to be connected in part to pollution from the growing populations of the Sierra Nevada foothills and Central Valley.) In such a market, how do we begin facilitate the expression of the values of efficiency, environmental stewardship, public health, and community?

A Los Angeles Times' article on 29 March 2000 purported that automobile buyers pay more attention to cup-holders than the environmental impacts of different vehicles. There is little to no evidence that a majority of consumers will pay more than a token premium for clean and efficient vehicles. And aside from the uncertainties of green marketing, automobile companies face the initial challenge to convince even the most ecologically conscious consumers of the durability and reliability of new technologies. Marketers must trade-off size, weight, and power. They have to understand response to changes in refueling practices as they attempt to integrate these technologies into currently profitable product lines. These particular marketing challenges are new; the auto companies have little experience or market information with these values.

Even when knowledge barriers are overcome, these marketing challenges may require a large shift in marketing resources. Conventional marketing of vehicles is a large industry—$14 billion per year in the United States alone. Within the automobile companies, those groups charged with making and promoting clean and efficient vehicles are new and relatively small. They must compete within their own companies for resources to develop, produce, and advertise their products. Public agencies and non-governmental organizations (NGOs) who wish to promote clean and efficient vehicles typically do not have the resources and expertise to mount the long-term marketing effort required to transform the market.

Overcoming these challenges will require long-term, coordinated efforts among public interest groups, public agencies, and automobile makers. Towards this end, the Institute of Transportation Studies held a workshop entitled "Marketing Clean and Efficient Vehicles" on March 22 and 23, 2001 at the University of California, Davis. The Steven and Michele Kirsch Foundation and the United States Department of Energy funded this workshop. The workshop brought together representatives from federal, state, and local government agencies (e.g., federal DOE, DOT and EPA, the CEC and CARB,

regional AQMDs, local cities and counties), environmental groups, proponents of electric transportation, marketing and communications experts, and representatives of two automobile companies. They came together to discuss prospects for, and barriers to, a marketing effort for clean and efficient vehicles. This workshop had two primary goals. One, to develop an action agenda for attendees to move forward in promoting cleaner, more efficient products in the market for light-duty vehicles. Two, to develop a research agenda to support the action agenda. An ancillary goal was to bring together representatives from a variety of institutions in an effort to identify common objectives and to explore potential mutual activities.

The workshop was organized in the following fashion:

Day One
- A keynote speaker from the social marketing profession to describe the challenges and basics of marketing clean and efficient vehicles.
- A panel of speakers who are marketing clean and efficient vehicles at the "community and customer" interface.
- A panel of speakers who are organizing national marketing efforts.

Day Two
- Presentations by the U.S. Department of Energy and the California Air Resources Board, who are supporting marketing programs for clean and efficient vehicles.
- A behavioral research expert to speak on research methods.
- Breakout sessions for attendees to develop action and research agendas.

### *Summary of key points made by speakers in the workshop*

The whole social marketing effort is driven by research. Research must be conducted in three stages: listening to consumers, testing programs, and monitoring outcomes. Behavioral change will take many years and will involve a number of steps, each with its own research component. To stay on track during long period of change, we need to develop and employ "process measurement"—measure intermediate changes in behavior to measure progress—as well as tracking intended outcomes. (Christi Black, Ogilvy Public Relations Worldwide)

- A necessary first step is to provide basic education to consumers about the new options and role of transport in health and environment issues. Oak Ridge National Laboratory convened two focus groups in Knoxville, Tennessee on February 27, 2001. Car buyers in these focus groups were largely unaware of the relation between $CO_2$, fuel efficiency, and global warming (Bo Saulsbury, ORNL).
- Initial steps to provide more information in more different media are being taken. For example, there are a number of new sources of information on the web: Ozone maps, to show where dirty air is located; EPA, ORNL, and ACEEE green car ratings systems; a new web site from CARB—ZEVinfo.com.

We need to break out of simplistic images of the market place. A more complex understanding is requisite to study and engage all actors and all motivations. (Bob Knight, BKI)

- We have learned in green marketing that you cannot preach to consumers, berating them for their current sins to get them to change their behavior. We must offer an exchange, give them something for their step forward, including incentives, privileges, and tangible results for their community-minded actions (Maggie Nilsson, Ecos Consulting; other marketing professionals echoed her point.)
- Research efforts need to listen carefully to the design choices consumers want—choices that plug into their environmental values. Small design choices—"think cup-holders"—can be a big win for both the environment and consumers. (John DeCicco)
- Currently, sales people at dealerships do not have incentives to encourage them to focus on selling clean and efficient vehicles. Often customers come into the dealership wanting to talk about the new vehicles, but not to buy. This means much more of a salesperson's time goes into each sale of an EV or AFV, than goes into the sale of a conventional vehicle. (Mark Baines, San Francisco Honda)
- Even the comparatively successful new hybrid EVs (Prius, in this case) are currently selling to a small market of environmentally motivated buyers. Toyota is waiting to see Prius buyers who are not coming into dealerships just to buy a Prius, but are comparing the Prius to other important, conventional competitors—for example Toyota's own Echo and Camry, and Honda's Civic and Accord. Toyota believes this will be an important indicator of the market bridging from a small environmentally conscious or technologically-curious vanguard to a larger, more sustainable (in the marketing sense of that word) market. (Geri Yoza, Toyota Motor Sales, USA)

Much can be done at the community level to promote these clean and efficient vehicles. The City of Vacaville has raised funds from CMAQ and other sources to incentives the purchase of EVs (Ed Huestis, City of Vacaville). Regional AQMDs, as well as state and federal air quality and energy regulators can provide information about policy goals and the means to achieve them. (Kerry Shearer, Sacramento AQMD; Lisa Kasper, CARB) Vehicle rental agencies can provide experience with new vehicles (Terry O'Day, EV Rental Cars). A variety of organizations can stage locally based demonstrations ranging from single day events to long-term vehicle leases.

### *Research Action Items*

The workshop resulted in a number of suggested research actions. We state these as the following research questions.

**Industry**

- What are the automobile industry's options to reduce vehicle size without loss of profits?

**Consumers—Individuals**

- What is the value of non-monetary incentives?
- How do consumers perceive small design changes (differences) between vehicles?

- What kind of information would make consumers consider environmental aspects of vehicles, e.g., to consider the choice of two wheel-drive or four wheel-drive from an environmental perspective?

**Individual Ramifications of Social Contracts**

- What are the ramifications for consumers of social dimensions of vehicle choices, e.g., would you buy an EV because your neighbor wants clean air inside their car?

**Social Dimensions of Individual Choice**

- How does a community talk about new mobility choices before they try them? How does a community talk about new mobility choices after they've tried them? What are the mechanisms and content of such discourses?
- Are there "community profiles" analogous to market segments? Are these more or less useful than market segments based on types of individuals and households?

**Developing an Holistic View**

- What is the full range of influences and motivations acting on consumers? For example, how do we incorporate the role of educators and vehicle mechanics in this particular green market?

**Alternatives to Marketing Vehicles**

- What is the impact on clean air and global warming of mobility purchase behavior vs. vehicle purchase behavior?

## Presentation Summaries

### *Why a Workshop on Social Marketing for Clean and Efficient Vehicles?*

**Tom Turrentine, Institute of Transportation Studies, University of California, Davis**
Tom provided the basic motivation for this workshop—continuing environmental problems stemming from light-duty vehicle emissions. Despite technical improvements (e.g., reductions in emissions per vehicle mile), we continue to fail to meet ambient air quality standards and total energy consumption in transportation continues to increase. The marketplace continues to move towards larger, more polluting, and less efficient vehicles. Further, Americans are driving more miles each year. The continuation of these trends threatens to offset technological gains.

Tom also noted that until quite recently, technological improvements in emissions and efficiency were made through regulatory processes, not through the market place (with the exception of the move to more efficient vehicles in the 1970s). Most consumers are not aware of the differences between vehicles in terms of emissions, and do not know the relationship between fuel efficiency and global warming. Moreover, the price of gasoline has stayed so low for so long in the United States that the financial incentive to buy fuel-efficient vehicles has not been present for many years. Thus we are now faced with a market in which vehicle emissions have never been a part of vehicle choice (California's ongoing experiment with ZEVs not withstanding), and fuel efficiency has been absent for decades.

### *What is Social Marketing? Applying Social Marketing Principles to Selling "Green" Cars.*

**Christi Black, Ogilvy Public Relations Worldwide**
Christi spoke on "Applying Social Marketing Principles to Selling 'Green' Cars." Ms. Black outlined the differences between traditional marketing approaches built on the four Ps—Place, Product, Promotion and Price—and social marketing approaches. Social marketing adds several layers to the marketing process, summarized as Program, Partnerships, Public Participation, Policy, Politics, Public Relations, and Proof. Social marketing is about behavior modification, getting consumers to adopt a behavior that is in their best interest (even if that interest is mediated by the necessity of others having to make similar choices). Partnerships in a social marketing program make it possible to provide "exchanges" to consumers for this desired behavior, such as acceptance in a group, identification with role models, rewards from employers and manufacturers, incentives, penalty avoidance, and garnering personal benefits. Because social marketing requires behavior changes, achieving this primary goal can take many years. Therefor, success is measured in terms of both process goals and outcome goals.

The tools and tactics of the social marketing campaign are drawn from the larger field of marketing, e.g., advertising and market segmentation. But social marketing also includes lobbying and public relations, including media advocacy, community relations, outreach to all stakeholders, and policy development. Often this process begins with building public awareness of issues, then moves on to either change or reinforce attitudes, and finally to support the desired behavioral outcomes. A social marketing program seeks to allow citizens to understand the problem, to create wider public support, and to make the solutions personally important to each individual by relating change to each person's contribution.

To then motivate change of behavior, the social marketer must understand the key motivators and key barriers, develop rewards for change, and provide incentives and penalties. The social marketer must research their audience to understand its cultural, geographic, demographic, linguistic, and even personal diversity (particularly as related to sensibilities about vehicle purchases). The marketer must also understand the clutter of information and communication in which the buyer resides, and know the relative credibility to consumers and citizens of information sources and communications media.

The final "P"—proof—points to one use of research in social marketing, but the whole process is driven by research. Research must be used to design the program; both secondary, such as literature reviews and existing data on the marketplace, and primary data gathered through focus groups, telephone surveys, interviews and direct mail surveys.

## *Panel One: Community-based Marketing*

**What is Community-based Marketing?**

> "Community-based social marketers identify the benefits and barriers to behavior and then organize the public into groups, or 'segments,' which have common characteristics, in order that the delivery of programs can be most efficient."
>
> Doug McKenzie-Mohr and William Smith (1999) *Fostering Sustainable Behavior: An Introduction to Community-based Social Marketing*. New Society Publishers: Gabriola Island, B.C., Canada.

According to McKenzie-Mohr and Smith, this definition is put into action by answering the following three questions:

- What behaviors should be promoted?
- Who should the program address or target?
- What conditions (barriers, incentives, competing behaviors, etc.) do members of those target groups face in adopting the new behavior?

This panel was organized as a case study of one "community" and efforts there to introduce ZEVs to household and fleet markets. Our original intention was that the panel would address the metropolitan area of Sacramento. For a variety of reasons—speaker availability, the number of excellent programs in other cities—the panel also included a speaker from San Francisco, Los Angeles, and Vacaville, CA.

**What behavior is being promoted?**

These panelists were asked to talk primarily about education, outreach, marketing programs for air quality and ZEVs; some were also asked to address HEVs.

**To Whom?**

Most panelists described efforts to address information to residents of the Sacramento metropolitan area, and to promote ZEVs to both household and fleet markets. The fleet market efforts tended to focus more on government fleets (especially the large number of State fleets in Sacramento, California's capital). Mark Baines from San Francisco Honda spoke more generally about the role of the

automobile dealership and salespeople in marketing EVs; Ed Huestis spoke about the programs in the City of Vacaville. Terry O'Day spoke about the use of rental car agencies as outlets for EVs and AFVs. Though based in Los Angeles, he has set up EV rentals in the Sacramento area too.

**What conditions do people face?**

The conditions can largely be described as barriers to ZEVs, including recharging infrastructure, information on vehicles and underlying reasons for ZEVs, and vehicle availability. The panelists, by and large, addressed the variety of conditions that consumers faced in learning about EVs, in acquiring EVs, and the efforts to overcome those barriers. These include providing information about why people would consider EVs to improve air quality, product demonstrations, and incentives.

**Kerry Shearer, Sacramento Metropolitan Air Quality Management District**

**Communicating Air Quality in the Sacramento Region**

The Sacramento Metropolitan Air Quality Management District has implemented many ways of communicating air quality information to residents in the Sacramento region. Kerry outlined his presentation according to these types of information efforts:

- Air quality public education
- Episodic notification
- Non-traditional ways to communicate
- Public awareness

Public education programs include outreach through employers. Currently, brochures and fact sheets are distributed through 580 employers with a total employee population over 200,000 people. A more recent innovation is the use of real-time ozone map movies on its air quality web site—www.sparetheair.com. The maps are shown during Sacramento's "ozone season"—May to October. They are also shown during the weather segments of local television newscasts.

The Air Alert program provides day-before notification of Spare-the-Air day (high ozone) advisories and real-time notification of unhealthy air in the region. The Air Alerts can be sent to e-mail addresses, text pagers, and digital cellular phones. Other outreach measures include both paid and donated radio and television spots aired the day before and the day of high ozone concentrations.

In addition to the ozone maps, the web site is a source of daily air quality forecasts, air quality news, tips on reducing emissions, health information. Users may also sign up for the Air Alert program using the web site.

Less traditional outreach efforts include development and distribution of "tabloid"-style informational brochures distributed through the waiting rooms of health care providers and direct contact with schools regarding air quality, and notification of high ozone days in particular. The tabloid contained real air quality information presented with bright color graphics and wild headlines, e.g., "Psychic predicts clean air in the future…."

Two interactive "edutainment" projects have been undertaken with the involvement of several other partners. Smog City allows users to simulate the effects of weather, population, and emissions on air quality. The other, Planet Polluto, is a game available on CD-ROM.

**Tim Hastrup, EV Owner from the nearby city of Roseville**

**EV Driver Experience as Consumer and Ambassador**

Tim Hastrup spoke as an enthusiastic EV owner. He and his wife lease two EVs: a General Motors EV1 and an electric Ford Ranger. He relayed his own experiences in leasing their vehicles—which were generally positive except for the long waits. He provided first hand accounts of the fascination with EVs expressed by the general public, and his role as an ambassador for EVs. He spoke wistfully of the disappearance of EVs from the market, commenting that while he was intrigued and excited by hybrid vehicles like Honda's Insight and Toyota's Prius, for him they were clearly a second best choice.

**Daniel Gehringer, Sacramento Municipal Utility District**

**Driving EVs to Market: The Many Roles Played by Electric Utilities**

As the primary "fuel" retailer for electric vehicles, electric utilities have obvious interests and roles in marketing ZEVs. SMUD undertook a multi-faceted effort to:

- Provide electric vehicle recharging infrastructure
- Spur technological development through research and development
- Support market development through implementation in its own fleet and demonstration to other potential users and education and outreach.

Daniel outlined SMUD's activities in all these areas. The initial aims of SMUD's activities—going back to July 1990—were to introduce EVs to SMUD's own fleet, create an EV loan program, and market research. Recharging infrastructure to support EVs was also an early priority. SMUD began installing 110v charging infrastructure in 1991. They quickly moved to higher power installations, as it became apparent that EVs would be charged from 220-volt systems. Today, SMUD maintains its commitment as the exclusive distributor in California and Arizona for inductive chargers. The utility has installed over 200 recharging appliances in the Sacramento area and over 3,300 throughout California.

SMUD's Electric Transportation Group defines "outreach" as the process of extending knowledge to the Sacramento Community with a emphasis on perception. Their approach is based on what Daniel described as a realistic approach, based on providing hands-on experience. One of their main goals has been to overcome negative EV perceptions. They have participated in EV loan programs in Sacramento and throughout the state. Other outreach efforts have included the following:

- Community Forums
- Education Seminars
- Environment Conferences
- *'Get the Word Out'* Program including grassroots marketing, the SMUD website, SMUD's customer connection, an EV Hotline, and direct mail

**Lisa Kasper, California Air Resources Board**

**Expanding Outreach to Support Regulation**

The California Air Resources Board is expanding its efforts to support its ZEV regulations and requirements with marketing tools. Past efforts had included ZEV demonstrations to fleets, particularly state government fleets in Sacramento (but also including efforts in Southern California in cooperation with the South Coast Air Quality Management District). In recognition of the need to create an expanding program of public education and outreach, ARB has recently expanded its own efforts. These include hosting a series of workshops on EV marketing and its participation in outreach activities with many partners. These activities include:

- Vehicle demonstrations and presentations at schools and conferences
- Creation of the website: ZEVinfo.com
- Co-host of the "ZEVent 2000"—a one day ZEV demonstration and media event
- Establishing both short-term and long-term EV loan programs
- Increasing efforts to encourage fleets to use EVs through the *evSacramento* program
- Establishing the "EVs for Education"—a program that seeks to include EVs in school curricula and make EVs available to educational institutions.

**Mark Baines, San Francisco Honda**

**Can you Sell EVs for a Living?**

Mark Baines is the alternative fuel, electric, and hybrid-electric vehicle sales manager for the San Francisco Honda dealership. He provided insight into the position of these products and their "mainstream" competitors on the sales floor of a dealership. The existing training programs and incentive structures in an automobile dealership do not reward salespeople for the additional time and energy it takes to sell an AFV, EV, or HEV. Most salespeople work on commission and believe they earn more selling a larger number of conventional vehicles in a given amount of time. The group of EV sales managers at Honda dealerships is a small one, and Mark believes those people undertook to promote them out of a personal interest in the product—because of their interest in the technology and in clean air.

**Terry O'Day, Budget Rental Car**

**Marketing Environmental Vehicles**

The subtitle of Terry's talk was "You gotta get 'em into the car." To create opportunities to put drivers into EVs, HEVs, and AFVs, Budget Rental Car includes several in their rental fleet. There are now at total of 250 EVs, HEVs, AFVs, and ultra-low emission gasoline vehicles for rent at nine of Budget's U.S. locations. (Most of these are in California, including Sacramento. One is in Phoenix, AZ and another is in Pittsburgh, PA.)

At the time of his presentation, the EV fleet had accumulated over 2 million vehicle miles of travel. During the year 2000, the total number of EV transactions increased from less than 200 per month in January, to over 1400 per month during October, November, and December.

Terry said that the extensive international, national, and local print and television exposure of the EV rental program was important to attract customers and earn credibility.

He provided a "snapshot" of one month at the Los Angeles airport rental site. In that month, that site rented 20,000 vehicles. Of these, 750 chose an AFV. Each of these transactions involved the customer meeting with a specialist who provided an orientation to the vehicle. Customers then used the vehicles in everyday traffic to complete their rental car missions.

Renting EVs, HEVs, and AFVs has produced many lessons. His list of 'what doesn't work" included:

- General awareness is not linked to action
- Sole reliance on car dealerships to make vehicles available to potential customers
- Environmental or technology messages only
- Long waiting periods
- Inconsistent messages about availability (both the number of vehicles and where they may be obtained).

His list of "what does work" included:

- Customer testimonials
- Word of mouth
- Clear customer value proposition
- Direct incentives for rental agents
- Extended demonstrations in daily driving conditions

**Ed Huestis, City of Vacaville**

**How to "Electrify" More of the Public To Lease Electric Vehicles**

Ed Huestis has spearheaded efforts in the city of Vacaville to promote EVs. In addition to describing those activities, Ed described the innovative way he was able to fund these efforts in a small city. The city of Vacaville began hosting EV ride-and-drive events n 1998. The city leased a GM EV1 I that same year. Also in that year, the Solano Transportation Agency decided to make EVs a priority in the county.

In addition to a variety of EV demonstrations, Ed Huestis outlined the innovative manner in which the City of Vacaville was able to make these happen. The City applied for, and received, $300k in Congestion Mitigation and Air Quality (CMAQ) funds to pay for incentives (lease buydowns), EV leases for city vehicles, and installation of recharging infrastructure. They were able to facilitate the lease of eight GM EV1s and four Ford Ranger EVs by people in Vacaville. The City was able to place orders for four Toyota RAV4s and two Ford Ranger EVs. The program has garnered extensive local media coverage.

Their success led them to apply for twice as much funding in a second CMAQ application. They were again successful—allowing them to not only expand the program in Vacaville, but to implement a similar program in another city in their county. The city has set itself the goal to have the more electric vehicles per capita (residential) than any other city in California. Further, the city is committed to maintaining ten to twelve EVs in its own fleet, and to install EV charging at every interchange of Interstate 80 as it bisects the town. This is part of a commitment to expand the current network of 14 recharging appliances by 20 to 25 more.

### *Panel Two: Marketing at the State and National Level*

**John DeCicco, author of the ACEEE Green Vehicle Rating Guide**
John spoke on transforming the marketplace toward environmentally preferable vehicles. He noted that despite the excitement about the Toyota Prius and Toyota's interest in green cars, the introduction of the Toyota Sequoia full-size SUV was a major shift upward in Toyota vehicle sizes. The Sequoia (at least in the short term) will have a larger impact on the market than the Prius. Thus, this one new truck model will more than undo the environmental benefits of the Prius.

John presented his pyramid of strategies for transforming the market. Regulatory programs for emissions and fuel economy standards form the base. On top of those are broad coverage incentives, such as fee-bates and tradable credits. The next strata are other incentives aimed at commercialization. The top of the pyramid is research and development.

John notes that we have just begun to learn about how to use marketing strategies to transform the marketplace. He discussed his own Green Guide, just reissued for model year 2001. The guide was developed as a stand alone consumer information tool that could also be used by media and educators, to stimulate government information, and to encourage other green scoring efforts. He pointed out that the Toyota Highlander, a "low emission vehicle," earned a top score among medium-size SUVs and thus a slot in the "Greener Choices" list.

He points out that small design choices—"think cup-holders"—can make a difference for both consumers and the environment. The recycling movement was successful when it became convenient for consumers through curbside pick-up. Thus we must deliver green choices for consumers, instead of "alternative technologies" to move the market, allowing consumers to express their good intentions. This will empower the public.

There are many roles for government, industry, and other organizations in this new effort to transform the market. Government for its part must develop more public information and incentives programs, and lead in developing "green fleets." Industry must share appropriate market research information, and collaborate on public labeling and information programs. Other organizations can assist with education of the public, develop an appreciation of customer focused marketing, and encourage private fleet transformation.

One current effort is the Green Vehicle Marketing Alliance, which is an effort to build a multi-stakeholder effort made up of Government (at all levels), industry, non-profit organizations, consumer groups, and researchers. The scope of GVMA will be consumer education, public relations efforts, market research, vehicle labeling, awards, and other product recognition. GVMA will build the green concept, provide information to other organizations and to the public, and organize market research.

**Geri Yoza, Toyota Motor Sales USA, Inc.**
Geri Yoza is National Marketing Manager for the Toyota Prius Program. The Prius Program is in full swing. Toyota manufactures 36,000 Prius worldwide, of which 12,000 are destined for the US market.

The launch of the Prius presented an opportunity for innovative approaches within Toyota, including web marketing and vehicle distribution. Specifically, Toyota implemented a new internet dealer ordering and delivery process for Prius. Dealers carry no inventory, though each dealer has a few for rental or display purposes. Buyers order vehicles, which are then delivered to the dealer. Delivery of a Prius currently takes several months, and there is a national waiting list. The majority of buyers purchase rather than lease, and the strongest market so far has been in Northern California, especially the San Francisco Bay Area.

The Prius is a five-seat sedan and is not aimed at the same market segment as electric vehicles, such as the EV1 or the other current hybrid offering, the Honda Insight. Rather Prius draws from the same market segments as the Taurus or Accord.

Despite the high cost of this new technology, Toyota has set the price of a Prius competitively. Nevertheless, the current price of a Prius is a few thousand dollars above comparably equipped vehicles, like the Corolla. Toyota would like to see additional incentives from the public sector to bring the price down to the same level as a comparable vehicle so as to attract buyers from outside the environmentally-conscious market segments. As the market develops, Toyota is not likely to increase the manufacture of additional Prius's, rather it will put hybrid drivetrains into additional product lines.

**Lisa Snapp, United States Environmental Protection Agency**

Lisa spoke about the EPA's Green Vehicle Marketing Program. The main goals of the program are to:

- Help people understand the links between cars and the environment, including emissions and fuel economy
- Have consumer know their greener vehicle choices
- Get consumer to screen their choices through environmental concerns.

The key elements of the EPA program are 1) deploying "green" rating systems, 2) developing a trusted brand name, and 3) promoting public willingness to act. The rating systems must be responsive to public need and research findings. The green brand must offer instant signification of green choice. The public must believe that green vehicles are widely accepted, believe that their choices make a difference, see that they don't have to make big sacrifices, receive information that they need to make choices, and understand their obligation to act.

The EPA Green Vehicle Guide Website—www.epa.gov/greenvehicles— was launched in October 2000; the rating system based on a five-point scale of "green stars" launched in January 2001. The site has two rating systems. One is an overall rating of the vehicle emissions using a horizontal bar scale from one (highest, worst) to ten (lowest, best) emissions. A city and highway fuel economy rating accompanies the bar scale. Second is the newer five star rating. This system rates vehicles within vehicle size class. This system also incorporates emissions and efficiency. This within-class rating is intended to help consumers shopping within a size class—for example, mid-size SUVs—to pick the best vehicle in that class. The web site has been a "daily pick" on the Yahoo search engine site, gets good press, and is approaching 1 million hits per month.

The next steps are to refine the ratings approaches and web site with market research, develop an overall "green" transportation brand, and continue to coordinate with manufacturers and environmental organizations.

**Charles Villanueve, Natural Resources Canada**
Charles spoke on Canadian actions to develop a public education campaign around fuel efficiency as part of a Canada Action Plan on Climate Change. This program will be implemented in April 2001 with a federal contribution of Can$9.5 million over five years. This program will stress buying greener and more efficient vehicles and fuels, good driving habits, and regular vehicle maintenance.

The work plan includes market research to assess current levels of awareness of vehicle fuel efficiency, green aspects of fuels and vehicles, advanced vehicle technologies, maintenance issues, driving habits and fuel efficiency, and to identify barriers to behavior change. It also calls for development of a variety of marketing tools, including a green buyers guide, green labels, advertising campaigns, advanced vehicle testing and showcasing, internet activities, community based initiatives, and media outreach.

The plan emphasizes partnerships with automobile makers, fuel providers, parts and tire retailers, service centers, automotive media, other government agencies and communities. NRCan will provide leadership, and with the Transport and Energy Canada, will provide strategic direction, evaluation, and progress review.

**Bo Saulsbury, Oak Ridge National Laboratories**
Bo presented the results of two focus groups conducted during February 2001 in Knoxville, Tennessee. The groups were hosted by the National Transportation Research Center (NTRC). These focus groups explored car buyers' knowledge and understanding of how cars and trucks affect the environment, the link between environment and car purchases, and tested participants' response to several vehicle rating web sites. After a caveat that this is qualitative research, and thus not immediately generalizable to larger populations, he reported the following findings.

Participants for the most part believed that better vehicle fuel efficiency is better for the environment. This corresponded with the belief that larger vehicles are worse for the environment. However, they did not really know why bad fuel economy might be bad for the environment. The focus group moderator had to explain that poor fuel economy means greater $CO_2$ production per vehicle mile. Participants had a strongly held, but ill-defined, belief that cars and trucks are not good for the environment, especially old, large, or out-of-tune vehicles. They had general knowledge that tailpipe emissions are unhealthful and cause smog, acid rain, and ozone. They had little knowledge of which gases are the "greenhouse gases." Most participants assumed the government regulates emissions, that all vehicles meet standards, and implicitly that all vehicles meet the same standards.

These buyers did not know where to get information about environmental impacts of vehicles other than the window stickers on new cars and trucks. They did not know how to identify environmentally friendlier vehicles, and did not know if they were available. They also indicated that environmental concerns did not generally enter into their purchase decisions. For a few, fuel economy did affect their

choices, but for cost reasons only. They would like to know more about the differences between vehicles, but only a few thought this might alter their purchase decisions.

The two groups were asked to evaluate four Internet sites that rate environmental effects of vehicles. These ratings systems included:

- The EPA's two ratings systems described earlier by Lisa Snapp (the emissions/air pollution rating using a combination bar chart and 1-10 rating, and the EPA's green car rating, which rates vehicles from one to five stars within size and body style "class");
- The ACEEE Green Guide;
- California's (class-specific) LEV system; and,
- NRTC's own fuel economy site.

Participants understood best the EPA one-to-ten bar scale; it was simple. The EPA Green Star rating was not well liked because vehicles could have five stars from their class but not be as green as a vehicle with fewer stars from another class. Some regarded this as a trick. Response to ACEEE's Green Guide was mixed. On the one hand, the ACEEE system was liked because the scale was simple to understand and comprehensive in the environmental impacts it summarizes. On the other hand, the system was so complex in its calculations, that some wondered if they could trust the ratings. Others commented "all vehicles fail, so why bother?" (Green Guide scores are scaled from zero to 100, but the current high scoring vehicle is rated at less than 50.) The NTRC fuel economy site had some features that were well received. These included the presentation of annual fuel cost and tons of $CO_2$ produced for a standard car. However, some participants were totally confused over these numbers and the comparisons.

There was confusion between the ratings systems. In some systems (e.g., ACEE Green Guide) a higher number is better. On other sites (e.g., NRTC's use of tons of $CO_2$), lower numbers are better.

Bo offered these conclusions. Two types of information were most relevant to consumers—fuel economy as it relates to global warming (without the intervening issue of what gases cause global warming) and some sort of overall green rating. Further, this information needs to be available in places where car shoppers normally look, such as Consumer Reports and automobile showrooms. Finally, many of the participants believed that even if they had access to this information, it would not determine the type of vehicle to be purchased but would affect only some final choice between the last couple vehicles being considered.

### *The Role of Federal and State Energy and Air Quality Agencies.*

**David Rodgers, Office of Transportation Technologies, US Department of Energy**
David opened the second day of the workshop describing the role of the USDOE in marketing clean and efficient vehicles. David pointed out the projected growth of oil production to the year 2016 and its predicted decline thereafter. Further, domestic oil production is declining rapidly while domestic use is growing rapidly. The increase is due in part to the increase in the number of less efficient light duty trucks.

The federal government has been involved in developing new vehicle technologies through research and development programs, demonstration and deployment projects, incentives, regulation, and setting priorities. These programs pursued a portfolio of technologies, partnerships with the automobile industry, developed strategic planning, and sought sate and local input.

However, these programs had several pitfalls—one size fits all approach, too many program authors, unrealistic goals, single technology solutions, short-term thinking, and partial solutions. Better programs must allow more innovation and flexibility, be based on core principles, and have more realistic goals, a performance requirement, longer-term commitments, and a carrot and stick approach.

David described how the 1992 Energy Policy Act tried to help by setting a goal for the proportion of alternative fuel vehicles in federal fleets—10 percent by 2000 and 30 percent by 2010. These goals were to be achieved by using a combination of voluntary programs, public information, fleet mandates, and grants and incentives. The assumptions behind the 1992 EPACT included the following:

- The main barriers were informational.
- Mandates solve the chicken and egg problem.
- Fleets are uniform and easy to regulate.
- Small tax incentives and grants will motivate the market.
- The fuel providers will lead the way in vehicle use.
- Having a goal was sufficient.

David stated that we are headed in the right direction, but will not meet 2010 goals of 30 percent fleet penetration. There has been steady growth of alternative fuel use in fuel provider, state, and federal fleets. The Clean Cities Program has 80 participating programs and many thousand vehicles. Information about AFVs has become more widespread. The number of refueling stations has grown. Dozens of models of AFVs have been offered by OEMs. He noted that EPACT suffered most of the pitfalls described above.

What to do next? Recognize that there are serious energy supply and demand issues, that there is a role for federal government to do marketing, that marketing needs a more comprehensive approach to different segments with multiple technology options, and there needs to be great cooperation and partnerships with long term commitments.

### *California Drives toward Zero Emissions*

**Alan Lloyd, Chairman, California Air Resources Board**

Alan started by noting California's progress in achieving clean air, especially in the South Coast Air Basin, has been substantial. Peak ozone levels have steadily decreased over the last 20 years. However, rapid population growth and even more rapid growth in vehicle miles of travel will slow continued air quality improvements. Because of these trends, further progress toward achieving compliance with state and national health-based air quality standards requires that California's vehicle population exhibit zero emissions or near-zero emissions.

| | | | |
|---|---|---|---|
| California | 1999 | Projected 2020 | Growth 1999 to 2020 |

| | | | |
|---|---|---|---|
| Population (in millions) | 34.07 | 45.45 | 33 percent |
| VMT (in 10 million miles) | 765 | 1,046 | 37 percent |

Emissions from passenger cars and light-duty trucks have been drastically reduced primarily through Low-Emission Vehicle (LEV I and LEV II) regulations. The focus of the ZEV portion of these regulations has been on long-term benefits and a transformation of our vehicle pollution control strategy, towards vehicles with lifetime durability. This has implications not just for ozone but for air toxics, global warming, energy supply, water pollution, and other issues.

ZEVs are the "gold standard" of what can be achieved in motor vehicle emission control. ZEVs have no tailpipe, evaporative or fuel marketing emissions; they have reduced emissions of toxic and greenhouse gases; and they have no emission control equipment which can deteriorate or fail. The indirect emissions from power plants to recharge ZEVs are extremely low in California.

The CARB Board recognized the importance of the ZEV "gold standard" when staff presented a Biennial Review of the ZEV program on September 7 and 8, 2000. Subsequent to that review, the CARB Board directed staff to address ZEV cost, availability, and public education, and return to the Board in January 2001 with proposed improvements to the ZEV program to address these issues.

A set of such improvements were approved at the January 25, 2001, Board Meeting. The revised mandate now includes three primary categories of vehicles for compliance in 2003:

1) Two percent must be truly ZEVs (from the large manufacturers).
2) Two percent may be Advanced Technology Partial Zero-Emission Vehicles (PZEV), with very low tailpipe emissions.
3) Six percent may be non-AT PZEVs.

The adopted modifications provide manufacturers with additional flexibility to encourage early placement of ZEVs, include more stringent emission standards for heavier sport utilities and trucks, and achieve a 16 percent ZEV mandate by the year 2018. At this meeting staff also proposed to expand CARB's ZEV outreach and public education efforts.

Alan stated the ability to place the increased number of vehicles required over the next several years under the ZEV Program is one of the key issues facing us today. The ARB is charged with working with all the stakeholders to build a successful ZEV marketing plan. In order to take full advantage of the available market applications, EVs must be available at prices that are competitive on a lifecycle basis with those of similar conventional vehicles. In addition, there needs to be continuity toward an orderly buildup from current levels to increased market penetration. Several vehicle platforms must be available, in order to meet customer preferences and satisfy different needs. Public education is important to inform consumers as to the vehicles that are available and what they can and can't do. Finally, many customers continue to express a desire to buy rather than lease their vehicles.

CARB's long-term outreach goals are to build upon current and past stakeholder efforts to develop and implement an Outreach and Public Education Plan for ZEVs that:

- Educates consumers and fleet operators of their advanced technology clean-air transportation choices
- Provides accurate information to the public
- Dispels misperceptions of EVs
- Educates the public about how their transportation choices impact air quality and energy use
- Shows how the ZEV Program can benefit at-risk communities

Alan argued that future improvements in air quality depend on continuing to produce ZEVs:

> "We need to stay the course for air quality and energy diversity goals. For all concerned, we need to remove the uncertainty. It is an impediment to progress. The need to drive toward zero- and near-zero-emission technologies is even stronger today than it was in 1990 when we first adopted the ZEV program. A move to the electro-chemical engine is not going to happen overnight; it is a long-term program. It would cost more to abandon what we've started. Investment would stop without the mandate. In fact, we already have a blackout, during which few or no battery EVs are available to those who want them, at any cost. The auto manufacturers have done a tremendous job in designing and producing EVs. Now we need a cooperative program with the manufacturers to address per vehicle costs and mitigate the availability gap."

### *What will people do? A brief review of research tools for peering into the future of motoring*

**Martin Lee Gosselin, Groupe de Recherche Interdisciplinaire Mobilité, Environement, Sécurité (GRIMES), Université Laval**

Martin has been developing research methods for several decades that prospect the future for potential changes in driver behavior, including purchase and use changes to promote safety and environment. His talked about the research tools that lie between sales statistics (hard data) and focus groups (soft data) to help in designing and guiding efforts to promote clean and efficient vehicles. Martin said that the first step is to identify those segments of the market where realistic gains can be made, and to stick to reliable data.

Martin presented a case of two seemingly distinct households. The first household lives in a large private residence on the fringe of a major urban area. They have no access to transit from their residence. The two heads of household both commute more than 20 miles to work. They own three vehicles—one four-wheel drive and two sports cars. The second household shares one fuel-efficient vehicle, carpooling to work most days. They built their own passive solar house, are self sufficient, and live in a village of 1,000 persons. Martin then asked the audience which household they believed was most likely to buy a fuel-efficient vehicle. The answer is both equally, as he had described the same household—his own.

Martin used this example to illustrate that the answer you get depends on the questions you ask. All questions come with a context. Respondent and researcher must have a shared understanding of that

context; hence both researcher and participant must jointly construct a future choice scenario. To probe the future, you must first have a solid understanding of your research subject. You must always distinguish between constraints on their behavior and the behavior itself. Then you can decide if you wish to either fix or elicit future behaviors and fix or elicit future constraints. Future constraints can be "external" to the respondent, such as the performance of the future vehicle being suggested, fuel prices, regulations, or other frameworks. Constraints may also include commitments to family or shared cultural norms. Internal constraints can be perceived risks, personal values, and physical fitness, among others.

Martin notes that you can classify questions about the future constraints and behaviors in terms of four types of questions. Martin summarized these four in the following table.

The first, stated preference, is a classic utility tradeoff. An example of this type of question would be to ask respondents to choose between, for example, an electric vehicle with 100 miles of range and a trunk large enough for two suitcases verses an electric vehicle with 150 miles of range and a smaller trunk. The second type (stated adaptation) is a "What if?" question. For example, you might ask consumers what they would do if gas costs $7 a gallon and your city had 48 dirty air days per year. The third type of question (stated tolerance) is a "What would it take?" question. For example, you might ask consumers what circumstances would it take for them to buy an HEV that cost 25 percent more than a conventional gasoline vehicle. Finally, the fourth type (stated prospects) of question is "How does change start up for you?" An example would be to ask "under what sort of circumstances would you think about switching your personal vehicles and how would you go about doing it?" Below is a more detailed matrix of these four types.

| | | **Constraints** (expressed as attributes: personal/household/social/spatial/supply, etc.) | |
|---|---|---|---|
| | | *Mostly given* | *Mostly elicited* |
| **Behavioral Outcomes** | *Mostly given* | **STATED PREFERENCE**<br>(focus = tradeoffs, utility)<br>*"Given the levels of attributes in these alternatives, which would you prefer: [A]…? [B]…? etc…"* | **STATED TOLERANCE**<br>(focus = limits of acceptability and thresholds for change)<br>*"Under what circumstances could you imagine yourself doing:*<br>*[r1]]…? [r2]…? etc…"* |

| | | | |
|---|---|---|---|
| | *Mostly elicited* | **STATED ADAPTATION**<br>(focus = reactive and trial behavior; problem-solving; rules)<br>*"What would you do differently if you were faced with the following specific constraints: […detailed scenario…]?"* | **STATED PROSPECTS**<br>(focus = learning processes; information seeking; imagining, formation, and testing of choice-sets; metadecisions)<br>*"Under what circumstances would you be likely to change your travel behavior and how would you go about it […broad context…]?"* |

Each of these approaches has particular research value. The utility trade-off question allows quantitative measures of narrowly defined problems, such as tradeoffs between cupholders and CD players. The stated adaptation questions explore "coping behaviors" and thus help to design policies and public messages to support change. The stated tolerance questions explore the thresholds of "action" and pain to examine perceived relative advantages. Stated prospect questions allow for observation of how households solve problems under uncertainty. This offers much input to "policy" dilemmas and may prevent critical surprises. For example, instead of buying a fuel-efficient vehicle, households may think about getting rid of cars all together and moving their residence to an area well served by non-automotive options.

Martin closed by cautioning researchers to be humble when peering into the future. Among the larger trends shaping peoples' lives are an emerging 24-hour, just-in-time lifestyle, as well as the increasingly global resource and economic context. When researching the *futures* of novel technologies, researchers must understand what stage has been reached in diffusion of public knowledge. Finally, we must never underestimate the creativity of the consumer.

### *Setting the Stage for a Review of Current Knowledge*

**Ken Kurani, Institute of Transportation Studies, University of California, Davis**
(This talk was not given in whole at the workshop in an effort to get back on schedule for the breakout sessions described next. The overheads for the talk are included, and this summary is based on those overheads. One important purpose of this presentation was to prompt participants to suggest materials to be included in a review of what we believe we already know about marketing clean and efficient vehicles. Such a review is one initial step to define research needs.)

We are concerned with the marketing of new vehicles that are cleaner and more efficient. This suggests that overall we are interested in both household and institutional (fleet) buyers of new cars and trucks. But these two market types ought to be considered separately, and for purposes of this workshop and review, we will focus on households. Further, as low emissions and high efficiency are linked to both private and social goals, we are interested in beliefs and behaviors that people hold and exhibit as

consumers and as other types of social actors. These other roles include being members of families and organizations, residents of neighborhoods and communities, and citizens of cities, states, and nations.

In conducting any type of review of research, one of the primary activities is de-constructing lists. In the same way that the only way to understand the answers to questions is to understand the context in which the question was asked, it is important to know how a list has been constructed. In de-constructing, for example lists of attributes that "people" think are important about cars and trucks, we are trying to do two things—sift and sort. A list may be an overall average ranking supplied by a sample of people. We can sift through the individual rankings to find those who place low emissions and high efficiency higher than average. The more difficult task may be to re-sort the list for all (or at least, more) people.

In looking for relevant studies for an initial review, we are interested in all types of media and all types of methods: opinion polls, attitude research, revealed preference, stated preference, psychographic assessments, demographic analyses, lifestyle studies, results of product demonstrations and trials. In doing so, we must use care in including results from studies that may never have been intended to address our specific needs.

A few pertinent studies do reveal that people appear to want environmentally more benign vehicles. Support for this idea may vary depending on whether people respond as consumers or as citizens. Support may vary according to whether the question is phrased in terms of air quality or global warming. Responses to survey questions depend on the timing of the question relative to other events and news. We can compare the results of two surveys to highlight some of these. The Dohring Company reports from their *2000 National Automotive Consumer Study* that 57 percent of respondents agree that "auto manufacturers should make eco-friendly cars." In January 2001, American Demographics reported that a much higher proportion, 77 percent, of their respondents say it is extremely or very important that manufacturers make cars that produce less $CO_2$. The American Demographics and Dohring results are based on a similar style of question—what should automobile manufacturers be required to do. But American Demographics' results are based a more specific phrasing of the environmental effect ($CO_2$ emissions versus "eco-friendly").

ZEV demonstrations provide other types of information. They are a rich source of first-hand accounts with new technology. Gould and Golob report that EV test drivers perception of the environmental efficacy of EVs was higher after a 2-week trial. Drivers support for policy intervention on behalf of EVs was high prior to trials and remained so afterwards. However, after the trials, EVs were evaluated on a broader attribute base—not just clean air. The authors of that work are careful to give the usual caveats about demonstrations and trials—small sample size, self-selected respondents.

No single research method is "best." We learn different things from different types of investigations.

In addition to vehicle technologies and buyers, we need to understand the marketing mechanisms—how cars and trucks are sold, and increasingly, leased. The internet will continue to change how vehicles are purchased or leased by providing new channels of information and acquisition, e.g., direct sales, larger regional or nationwide searches for vehicles.

### *Market Professionals Panel Discussion*

A question and answer session was held with three market professionals. They were Carol Johnson (JHME Advertising), Kevin Collins (Advertising Rising), and Maggie Nilsson (Ecos Consulting). A topic that raised considerable interest was how to handle the competition between electric vehicles and hybrid vehicles. Concern was expressed that current advertising for hybrid EVs was emphasizing that buyers would not "have to" plug in a hybrid. This advertising message was seen as harmful to battery EV markets, especially since EV owners typically do not view plugging in as a hassle. Quite the opposite, plugging the EV in to recharge is seen a benefit, seeing as it is done at home. Kevin Collins commented that in the early market there should not be comparative advertising between clean products—no "hybrid vs. battery electric vehicles," or even brand competition such as Ford Th!nk vs. Daimler Chrysler neighborhood EVs. Rather, initially there should be an effort to float all boats. Another topic raised was how to be efficient with advertising funds. Carol Johnson noted that the media world has gotten very messy in recent years, with many new information channels. Picking the right channels is part of the overall marketing strategy. For example, in a recent project, Carol found that the best place to reach heavy-duty truck drivers with an air quality message was on localized media at truck stops. She also warned that despite growth of the Internet, Internet users are still a minority of all people. We are not at a time when the Internet should be seen as a core advertising strategy. Finally, Maggie added that her biggest lesson in green marketing had been to emphasize the positive contributions of a product and not to use guilt to change consumer behavior.

## Workshop Breakout Sessions

Workshop attendees participated in several breakout sessions to discuss strategies. The workshop employed a process known as "open space," in which attendees designed and lead their own discussions. This process was explained to participants, and the topics for the breakout sessions were identified on the first day of the workshop. Individual breakout sessions were convened on some of these topics on the second day. The open space process, the topics suggested by the workshop participants, and summaries of the conversations that were convened are summarized here.

### *Introduction to Open Space*

*Open Space* is about giving responsibility to the participants for constructing the important outcomes of the meeting. These outcomes include strategic decisions about education, outreach, and marketing; building alliances and commitments; determining action agendas, including research agendas to support decision making, or as part of marketing activities.

Responsibility is given to the participants to define topics for discussion in smaller groups. Any participant may suggest a topic; any participant may attend any breakout session. All topics are valid. But a conversation about a topic can only happen if someone takes responsibility to host the conversation and report it back to the larger group.

**Principles of Open Space**

- Whoever comes to a conversation are the right people to have that conversation.
- Whatever happens is all that could have happened.
- Whenever it starts is the right time.
- When it's over, it's over.

**One Law in Open Space**

Mobility: participants are free to move from conversation to conversation.

## *Suggested Topics*

The topics for which a breakout session was convened are summarized below. Some other topics that were suggested are not described here, as they were not convened due to lack of time or the loss of their initiator.

1) Which green vehicles need incentives? (Dave Ashuckian, CEC)
2) What are the best ways to build demand for clean and efficient vehicles? (Kathy Daniel, Federal Highway Administration)

**Topics combined together into a single session include:**

3A) Are we marketing technology or social change? How do we use both to reach our goals? (Lisa Kasper, CARB)

3B) If clean and efficient vehicle characteristics (e.g., technology) change the rules, which are the rules that should be challenged? (Martin Lee-Gosselin, Université Laval)

4A) How do we market the clean, green alternatives without vilifying the base product? Does it have to be "good" vs. "evil"? (Jamie Knapp, J. Knapp Communications)

4B) How do we conduct effective marketing (for clean and efficient vehicles) given the $14 billion manufacturers' (advertising) budget? Think creatively…

4C) Holistic green vehicle marketing strategy—alternatives to beating our heads against the wall (selling something people don't want to buy). What is the role of individual citizen, government, and automakers? Are their solutions that work "naturally?" (Robert Knight, Bevilacqua-Knight)

## *Topic 1: Which Green Vehicles Need Incentives?*

**Reporter: Dave Ashuckian**

**Participants**

Dave Ashuckian, CEC
Brian Abbanat, ITS-Davis
Susan Frank, Kirsch Foundation
Terry O'Day, EV Rentals

Lisa Snapp, US EPA
Tom Adams, City of San Francisco
Ed Huestis, City of Vacaville
Margo Melendez, US DOE
John DeCicco, Consultant
Willa Pettygrove, City of Davis
Carl Graham, Washtenaw County, MI

**Detailed Description of Topic:**

How do we create cost-effective incentives to achieve the goal of increased sales of energy and environmentally preferred vehicles? We need to identify ways to impact the mass market for vehicles within reasonable incentive budgets.

**Research Needs**

- What is the value of non-monetary incentives?
- How do consumers perceive small design changes (differences) between vehicles?
- What kind of information would make consumers consider environmental aspects of vehicles, e.g., to consider the choice between 2wd vs. 4wd from an environmental perspective?
- What are the automobile industry's options to reduce vehicle size without loss of profits?

### *Topic 2: What are the best ways to build demand for clean and efficient vehicles?*

**Reporter: Maggie Nilsson**

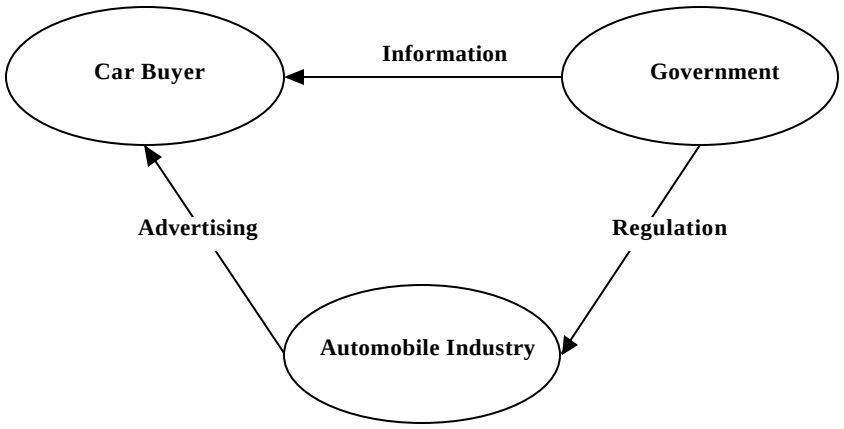
**Participants:**

Robert Knight, Bevilacqua-Knight
Carol Johnson, JHME Advertising
Tom Turrentine, UCD
Therese Langer, ACEEE
Willa Pettygrove, City of Davis
Daniel Gehringer, SMUD
Cece Martin, CETC
Jamie Knapp. J Knapp Communications

**Detailed Description of Topic:**

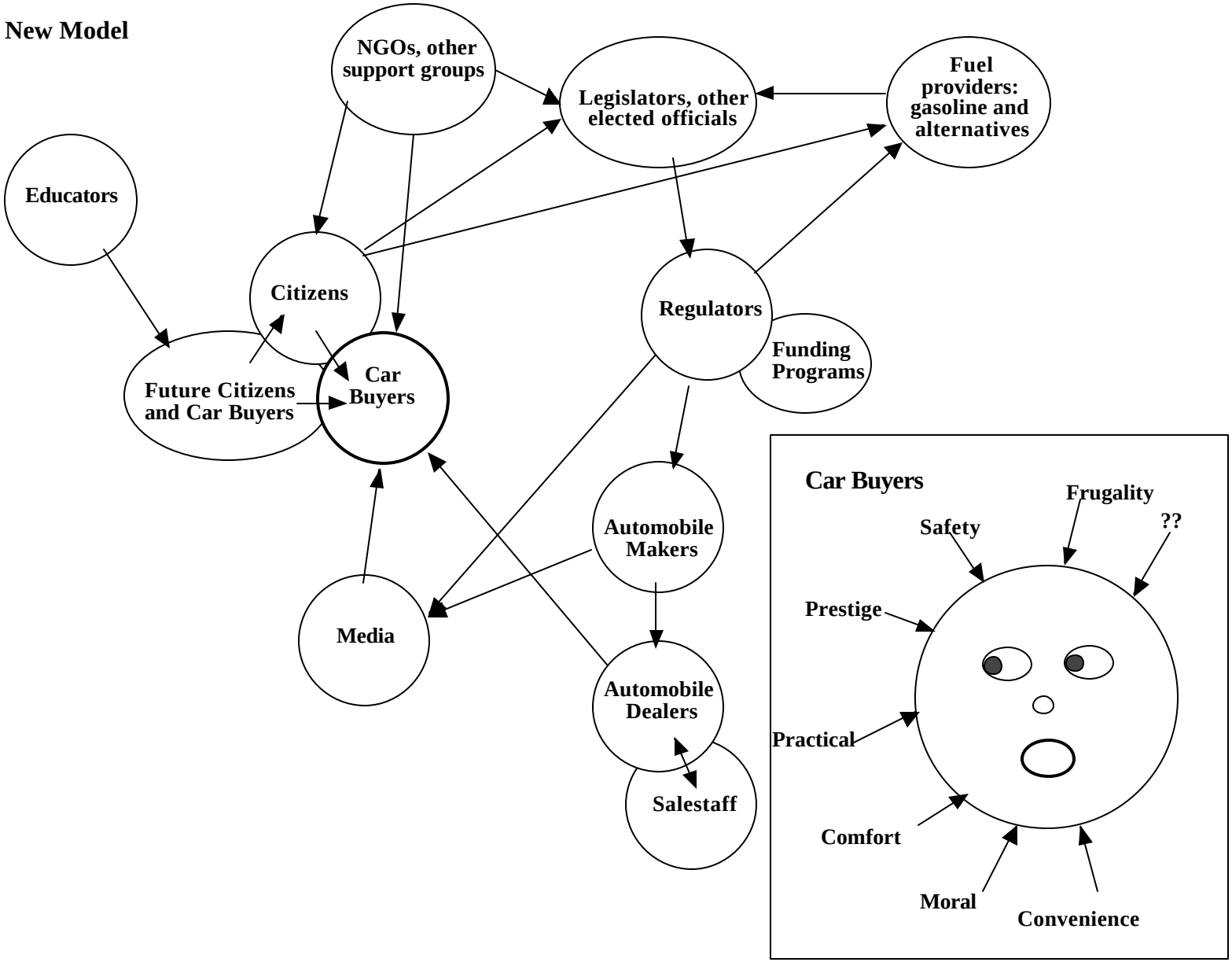
The discussion in this group center around Bob Knights idea that we need to broaden our understanding of the motivations of all stakeholders / actors in the market. Bob noted that efforts in to market alternative fueled vehicles has centered upon a simple idea of the market with a triangular relationship between manufacturers, government and consumers. This model is over simplified.

**Old Model**




The market comprises many more actors than the previous model suggests, including sales agents, media, mechanics, and even schools, whose motivations, knowledge, and behavior need to be understood to develop an adequate marketing plan. Below is a sketch of a more complete model that was drawn during the breakout session.

**New Model**


NGOs, other support groups
Legislators, other elected officials
Fuel providers: gasoline and alternatives
Educators
Citizens
Regulators
Funding Programs
Future Citizens and Car Buyers
Car Buyers
Automobile Makers
Media
Automobile Dealers
Salestaff
Car Buyers
Frugality
Safety
??
Prestige
Practical
Comfort
Moral
Convenience

**Research Needs**

This more complete model indicates a greater range of research activities. First, the model above is only a sketch, and needs a comprehensive approach to exploring the full range of actors in the market. Such an approach might demonstrate that it will be more strategic to focus marketing research efforts upon sales force and media, than upon consumers. Or, it might be important to market to politicians. Moreover, when doing research on consumers, look at full range of influences and motivations; for example examine the impact of mechanics and educators in this particular green market.

### *Topic 3: Increased choices through clean mobility*

**Reporter: Lisa Kasper**

**Participants**

Lisa Kasper, CARB
Steve Hansen, Th!nk Mobility, LLC
Kevin Collins, Advertising Rising, Inc.
Martin Lee-Gosselin, GRIMES
Tim Hastrup, EV Driver
Michael Coates, Green Car Institute
Kevin Mills, Environmental Defense

**Discussion Topic**

We discussed creating an "umbrella concept," under which all or most alternative fuel vehicles could fit. The idea would be to brand the concept of ZEVs and PZEVs in order to position these vehicles as an entirely new category of transportation. As an example, we noted how FedEx repositioned itself as the leader in the "overnight delivery" business, in essence, owning the new category. We also discussed how this theme and positioning would help automakers focus and leverage the message of alternative vehicles, leaving them more room for their own individual story.

I think in this context we endorsed the idea of developing a campaign similar to "Intel Inside." Such campaigns develop and promote a service mark that could be used to easily identify the vehicles.

Once the message was created, we talked about drawing maximum public attention to the effort. Given what we expect to be very modest resources, we thought a model "Mobility Community" would be a good way to showcase the efforts of all the green mobility options. This community would showcase how individuals gain more choices through clean mobility. Some details that need to be worked out include: (1) working with municipal officials to turn the community into an EV friendly town; (2) working with manufacturers to bring product to the community on a priority basis; (3) working with citizens to buy, lease or rent the vehicles; and (4) involving the local university and civic groups.

Actual towns were proposed as prototypes, among them San Luis Obispo, Santa Cruz, and Vacaville, CA. Concerns were expressed that the town embrace the "Modern Mobility Village" concept, be a

relatively small and self-contained, i.e., not in a major metropolitan market place where we can get this concept rolling and refined before trying to take it further (to make use of the "baby steps" concept).

As the effort developed, we would mount a social marketing campaign with two goals: a) appeal to local pride to encourage participation in the project, and b) change attitudes about tailpipe emissions in much the same way as the anti-tobacco campaign changed perceptions and behavior regarding second-hand smoke.

Finally, we discussed how such a concentrated effort would provide an unprecedented opportunity to research customer attitudes both pre- and post-vehicle experience, as well as a chance to observe customer behavior first hand. Conceivably, the results of such research could fast-forward the development of green vehicles by a considerable period of time.

**Research Needs:**

1) How does the community talk about new mobility choices before they try them?
2) How does the community talk about new mobility choices after they've tried them?
3) Are people doing new and different things, now that they are not looking for gas stations and parking spaces?
4) Would you buy an EV because your neighbor wants clean air inside their car?

### *Topic 4: What are the Best Ways to Build Demand for Clean and Efficient Vehicles?*

**Reporter: Ken Kurani**

**Participants**

Kathy Daniels, FHWA
Michael Coates, Green Car Institute
Dimitri Stanich, CARB
Tom Turrentine, ITS-Davis
Daniel Gehringer, SMUD
Brian Abbanat, ITS-Davis
Martin Lee-Gosselin, GRIMES
Jamie Knapp, J Knapp Communications
Tim Hastrup, private citizen
Lisa Kasper, CARB
David Ashuckian, CEC
Margo Melendez, NREL
Robert Knight, BKI
Ed Huestis, City of Vacaville
Lisa Snapp, EPA

**Topics of Discussion**

1) Funding alliances.

2) Developing messages based on talking to target audiences—Clean Cities, It All Adds Up to Clean Air—neither contain messages based on such research, nor do they have evaluative research.

3) All messages are aimed at people acting as consumers, not as citizens or in other social roles. Is the community—neighborhood, city, region, etc.—another valid research unit, in addition to the household?

Developing a research kit for communities. The kit contains the tools to evaluate the community and design their own campaign—messages and media—to promote clean air and efficiency. Solutions need to be available. For example, transit cannot be touted as a solution in towns and cities not served by transit. This is part of the motivation for a kit that communities use themselves.

What are the "community profiles" analogous to market segments? Are these more or less useful than market segments based on individual and household definitions?

4) Mobility purchase behavior or Vehicle purchase behavior?

5) Suppose Congress said, "Okay, you federal agencies start a social marketing campaign for clean and efficient vehicles." Are we ready to answer questions about what it is we would do, and how much it would cost?

It All Adds Up to Clean Air has $4.5 million for promotion, and must decide how to spend the money. Programs in each city were to conduct both pre- and post-promotion survey activities. Most of these programs (and maybe all) failed to conduct all the "required" research.
What would motivate these cities to conduct such evaluative research?

## Evaluations

After the workshop, we asked participants to tell us what they thought they learned and what they felt was missing from the workshop. We have summarized their answers below according to general categories. We offer these statements not as workshop conclusions, rather, as participants' impressions. We start by offering our thanks and congratulations to Christi Black; many participants offered her presentation as a high point of the workshop.

### *Highlights of lessons learned*

I learned…

**Automotive Industry—Producers and Retailers**

- …the difficulty within existing automobile dealership practices of motivating salespeople to deal with selling ZEVs, AFVs, and HEVs.
- …it isn't in the auto manufacturers' interest to collaborate on an effort to market clean and efficient cars.
- …a lot about the automobile manufacturers' approach to marketing HEVs, and what that said about their willingness to market clean and efficient vehicles.

**Marketing and Social Marketing**

- …the high importance of education and outreach in market transformation
- …the high importance of addressing messages to children.
- …the absolute need to test market programs before moving forward on a major rollout.
- …that we are talking about behavior modification/change as much or more than product marketing when it comes to clean/efficient vehicle marketing.
- …the limited effectiveness of providing direct cash incentives to individuals to do the right thing.
- …people still need education about the underlying issues before they can move to making vehicle purchase decisions.

**Government Policy**

- …the federal EPAct mandate has had limited effectiveness in producing a shift to AFVs.
- …the federal government and the State of California appear to be out of step with each other. The federal government appears to be shifting its attention away from criteria pollutants from light-duty vehicles toward efficiency and greenhouse gases, while California continues to focus on criteria pollutants and air quality.
- …of the City of Vacaville's successful application for CMAQ funds to help subsidize EV leases. [Eds.: This was of particular interest to participants from other local governments.]

**The Role of Research**

- …(from Prof. Martin Lee Gosselin's presentation on market research methods) of new research methods, ways to organize how to think about research, and the relationship between types of questions and types of research.

### *Things you would have liked to have seen (and may in a future workshop!)*

I would have liked…

**Cross-pollination**

- …more time to explicitly address the question of how the private and public sectors can work together to market clean and efficient vehicles.
- …more time to draw lessons out of California's experience with ZEVs, and used these to engage participants from throughout the country in a discussion of how to move ahead.
- …less time spent on ZEVs in California. [Eds.: Well, it was a mixed group of people.]

**Marketing and Social Marketing**

- …more presentations of specific examples of well executed social marketing campaigns.
- …a more general perspective on "mobility" rather than just new vehicle purchase behavior.
- …more focus on specific designs for marketing programs, driven by government. and/or private sector money that is available.

- …more discussion of how to use the experience of ZEV drivers to aid in marketing.

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## Appendix B: Speakers' Slides and Overheads