



December 28, 2005

CalCars 2006 Goals (followed by 2005 Report)

Based on our 2005 track record, for 2006, we have **ambitious goals**.

We hope to re-orient one car company's direction to enable it to reach California's 2016 Pavley-AB1493 CO2 goals in only a few years. We will thereby for the first time bring drivers and citizens into the privileged corporate-government insider group that decides what cars get produced. We hope then to influence other automakers' plans for advanced technology, fuel efficiency and sustainability. We'd like to set a precedent for ways to address other industries that contribute to global warming.

If you agree, PLEASE, if possible, send us a small or large contribution -- especially if you have never done so before.

You can help turn CalCars' campaign into a juggernaut. It's tax-deductible. And it's easy to do with a credit card, PayPal or check at <http://www.calcars.org/sponsor.html>

VEHICLES

- * Demonstrate the **viability of NiMH and Li-Ion batteries** in PHEV conversions.
- * Build a prototype **500 MPG (of gasoline) flex-fuel PHEV**.
- * **Expand conversions** beyond the Toyota Prius.
- * Find ways to get a substantial number of **PHEV conversions on the road**.
- * Facilitate Vehicle-To-Grid, solar-PHEV pairings and other **innovative pilot projects**.
- * **Convince an auto maker**, on its own or in cooperation with CalCars and others, to improve its business prospects by meeting demand from buyers excited about clean, powerful, advanced PHEVs.

POLICY

- * **Increase public awareness** of PHEVs through events and media coverage.
- * **Increase support for PHEVs** as a leading contender in national debates about energy and transportation solutions.
- * Build public awareness of the **"well-to-wheel" advantage in CO2 emissions of electricity over gasoline**.

- * Work with legislators, executive branch officials and agency staffs to build support, especially in California and the Pacific Northwest, for **innovative state- and regional-sponsored programs** to promote PHEVs.
- * Position flex-fuel PHEVs as a keystone component of a multi-dimensional **strategy on global warming**.

MARKET DEMAND

- * Get high-profile **entrepreneurs, celebrities and early adopters** behind the wheels of PHEV conversions.
- * Help develop and consolidate **interest among fleets and individuals**.
- * Help seed PHEV conversions **across the country**, available for media and public events.
- * Catalyze corporate, foundation and public **resources to create incentives** that buy down the incremental cost over conventional hybrids for the first thousands of vehicles,

CALCARS

- * Upgrade **calcars.org website**: improve navigation and interface
- * Promote PHEVs and CalCars through **new media channels** and other collateral materials
- * **Recruit more volunteers** able to commit substantial amounts of time to communications and technical projects
- * **Raise substantial funds** to provide CalCars with a budget that includes travel, conferences, paid senior staff and promotional resources
- * Help develop mechanisms to **improve coordination** among the organizations now promoting PHEVs.
- * Work to **partner with an automaker, perhaps by sponsoring a for-profit company** that will develop intellectual property and be open to equity investments.
- * **Affiliate CalCars as a special project** of a larger organization or sponsor.

Thanks as always for your suggestions and your support.

CalCars 2005 Year-End Report

Thanks to all the CalCars supporters and advocates for Plug-In Hybrids (PHEVs) for all your help this year. In 2005, PHEVs achieved unprecedented high levels of awareness and support.

We hope that 2006 will be the year when:

- * the appearance of PHEVs on the road introduces them to many more people;
- * those who "do the numbers" concede that PHEVs are a winning strategy;
- * at least one top automaker starts to build significant numbers of passenger PHEVs.

At the risk of tooting our own horn, and while acknowledging the efforts of many other people and institutions, we're told **CalCars has been central to transforming the environment for PHEVs.**

PHEVS TAKE CENTER STAGE

Rewind a few years. The electric utilities and EPRI have been promoting PHEVs for almost as long as UC Davis Prof. Andy Frank has been building them. But they were pigeonholed as "unrealistic" -- a theoretical option, not a viable pathway for automotive development.

What changed this year?

Once media and opinion makers saw the CalCars PRIUS+, plugging in became obvious, rather than offbeat. This opened up new avenues for advocates of energy security, CO2 reduction, economic development and PHEV fleets. Let's review that story.

In Sept. 2004, the California Cars Initiative received an anonymous \$20,000 grant from a major foundation to "**complete our first prototype vehicle**, followed by an enhanced version of that prototype and a second prototype using the 'batteries of the future' that we'll soon find in cars," and to "bring a promising new energy-automotive solution to **public awareness with a splash.**"

We've largely succeeded in both goals -- in fact we've far exceeded our initial expectations.

THE MEDIA CAMPAIGN

In late 2004, we debugged and tested the prototype we called "**PRIUS+**." In early 2005, we showed the car to one of the nation's leading automotive-business journalists in the daily press: Danny Hakim of *The New York Times*.

The core message was that CalCars' volunteer engineers and experimenters had turned a highly popular, top-selling hybrid into a **100+MPG car** using existing technology, requiring no new infrastructure.

Leading columnists Fared Zakaria (*Newsweek*) and Thomas Friedman (*New York Times*), cited PRIUS+ as the starting point for flex-fuel **500+ MPG (of gasoline) vehicles**. As we spread our story, we were inundated with repeated waves of publicity in the regional, national and international media.

As we fielded inquiries, we referred journalists to top spokespeople: Andy Frank, EPRI's Bob Graham, IAGS's Gal Luft, Set America Free's Anne Korin, former US Energy Dept. official Joe Romm, and Austin Energy's Roger Duncan. Major PHEV coverage came from the *Associated Press*, *Time*, *Business Week*, *Rolling Stone*, *LA Times Magazine*, *NY Times Magazine*, *NPR Science Friday*, and local and national TV. (See www.calcars.org/kudos.html we include links to news stories and full-texts, plus streaming audio and video clips.)

AN UNPRECEDENTED COALITION

CalCars worked with many strategic allies:

- * **Proponents of energy independence**, notably the Set America Free Coalition, began building what came to be called a "neo-con/geo-green" alliance. Securing America's Future Energy conducted two national executive oil crisis simulations highlighting the vulnerability of our energy supply chain and endorsing PHEVs as a pre-emptive strategy.
- * **Advocates of automotive solutions that address global warming** found it helpful to point to a tangible vehicle. The National Commission on Energy Policy's "Ending the Energy Stalemate" report ranked PHEVs as an optimal solution. Advocates heard about the PRIUS+, added E85 for the range extension fuel, and proclaimed a practical path to low-carbon cars.
- * **Environmental groups** also took notice. Bluewater Network (now a part of Friends of the Earth) and Rainforest Action Network got involved. The Union of Concerned Scientists began to mention the PHEV option. The Natural Resources Defense Council, following on its influential report on biofuels, prepared to focus greater research attention on PHEVs.
- * **Organizational endorsements** came from the American Public Power Association, the Apollo Alliance, the Institute of Electrical and Electronics

Engineers (IEEE), the American Jewish Committee and others.

* **High-profile individuals** endorsed PHEVs: James Woolsey, George Shultz, Robert Kennedy, Jr., Lester Brown, Frank Gaffney and William McDonough.

* Attention expanded in the **automotive and advanced vehicles** world. The Electric Drive Transportation Association brought PHEVs into the mainstream in its programs and brochures. At CALSTART-WestStart's annual Blue Sky event keynoter James Woolsey promoted flex-fuel PHEVs.

* In the **green media**, *EVWorld.com* opened a new "electric hybrids" area for expanded PHEV coverage, and *hybridcars.com* invited CalCars to provide input and launch a blog. In one issue, *Green Car Journal* devoted four articles and 2 columns to PHEVs.

* **Republican and Democratic Senators** including Obama, Lieberman, Hatch, Brownback and others joined to promote PHEVs. The Energy Act authorized a \$40M development program, and November's bi-partisan House/Senate Vehicle and Fuel Choices for American Security Act promotes them.

* In **California, agencies and elected officials** began to re-examine their automotive priorities, especially as the current world situation and available automotive technologies suggested the benefit of refocusing from a primary emphasis on emissions to displacing petroleum and reducing greenhouse gases. Efforts by many people, notably PG&E's Gail Slocum (also CalCars' Senior Advisor), Danielle Fugere of Bluewater and Dave Modisette of the California Electric Transportation Coalition, have helped prompt people in the Executive staff, Energy Commission, Air Resources Board and regional Air Quality Management Districts to consider ways to include PHEVs in future strategies, especially as large-scale utilization of a Hydrogen Highway appears to be further away than initially expected.

* **Around the globe**, from Tasmania to Winnipeg to Tokyo, we responded to inquiries and began working relationships that may result in new initiatives and projects.

NEW ORGANIZATIONS SPRING UP

* Our emphasis on demonstrating market demand helped inspire Austin Energy to create Plug-In Austin.org, which in January will go national with the **Plug-In Partners** campaign to organize a **soft-purchase commitment for tens of thousands of PHEVs in utility and municipal fleets**.

* On the commercialization side, we introduced EnergyCS (our consultants on the PRIUS+ project),

to Clean-Tech, a Los Angeles natural gas retrofitter. They established a new joint venture, **EDrive Systems**, to sell installed Prius conversions in 2006.

* Manufacturers of batteries, motors, ultra-capacitors and other components formed the **Plug-In Hybrid Consortium**, a trade association aimed at facilitating automaker choices.

* Electric vehicle advocates looking for strategies to expand public support for plugging in and volume production of batteries and other components embraced PHEVs and formed **Plug In America** to promote both EVs and PHEVs.

PHEVS ARE NOW ON THE MAP

We often ask people, "Have you heard that hybrids can be modified so they plug in?" Now, often half answer "Yes!" Many ask when they can buy one.

Automakers are shifting their public and private responses from dismissive to open-minded. At our CalCars-News Archive, in updates to journalists and in our blog, we have tracked each evolution of their responses. Most of their objections have fallen away except for one: "The batteries aren't ready." We continue to disagree -- and are engaged in projects to demonstrate what is possible.

BUILDING/CONVERTING PHEVS

CalCars' top focus remains to **involve an automaker** to build prototypes, then a larger number of vehicles for the fleet market. We are very hopeful, in partnership with Prof. Andy Frank, that we have a reasonable chance of doing so. To further that goal, we're engaging with architect/designer William McDonough (responsible for the Ford River Rouge reconstruction) to create an environment in which cradle-to-cradle plug-in hybrid cars can be commercialized.

Meanwhile, until we (or someone else) succeed in recruiting an auto maker, we're continuing our technology development efforts:

* We've partnered with Electro Energy, a Connecticut public company with innovative bi-polar battery technologies, to demonstrate the viability of PHEVs **using the Ni-MH batteries** already in hybrids.

* With our support, **EDrive Systems** got a grant from the South Coast Air Quality Management to build four prototype Prius PHEVs using Valence batteries. We will pay the materials costs for one of these vehicles, which will give us a second "demo" car, and we will help document its performance.

* We're preparing to try out **advanced lithium-ion batteries** on our PRIUS+, and to explore conversions of **Ford Escape and other hybrids**.

* To meet the needs of technically advanced individuals who want to convert their cars, we are cooperating with a new open-source working group sponsored by the Electric Auto Association. The EAA-PHEV project aims to provide plans and a group rate for components to **do-it-yourselfers**.

GETTING OUT THE WORD

We've also continued our **education** projects:

* **Speeches:** We gave an extended presentation at the prestigious Palo Alto Research Center (PARC) Forum. We gave the keynote speech at the Action Summit in Wenatchee, WA, where they're working to establish an economic development node for plug-in hybrid technology and conversions. We spoke at the Electric Drive Transportation Association Conference in Vancouver.

* **Expositions:** The Electric Auto Association and the Rainforest Action Network sponsored our presence in San Francisco at the Green Festival, World Environment Day and the Sierra Summit. We benefited from the unprecedented sponsorship by the California Auto Association to show PRIUS+ at the SF International Auto Show in November.

* **Trips:** Our visit to the Pacific Northwest sparked a City Hall press conference by Seattle's Deputy Mayor, followed by the passage of a City Council resolution supporting PHEVs and Plug-In Partners.

* **Publications:** We developed a "Recommended Mix" of articles and information on PHEVs, including information on CalCars, EDrive, Plug-In Austin, Plug In America and the PHEV Consortium. We distributed about 10,000 copies of a brochure that grew from 16 to 32 pages, and about 10,000 smaller two-and four-page flyers. We made available PDF versions of all the publications for downloading and distribution.

* **Online:** We expanded **CalCars.org**, the most complete website for PHEVs. At its peak, one day in August, we had 16,751 unique visitors. We set up a "broadcast" website, the **CalCars-News Archive**; the number of subscribers has reached 2,800 (we just produced an easy-to-scan index of the 230+ items we've posted in 10 months). Our **"Power, Plugs and People" blog** at hybridcars.com has also generated high levels of response. And at year-end, we initiated a new project with **Free Range Media** (creators of The Meatrix and Store Wars animations) to develop an innovative new presentation.

All of CalCars' accomplishments have come almost entirely as a **volunteer effort**. We've benefited from thousands of volunteer hours from dozens of people, including Founder Felix Kramer and Technology Lead Ron Gremban.

Since 2003, we've raised over \$125,000. Sources include the Energy Foundation, a second foundation that prefers not to be identified, Southern California Edison, Pacific Gas & Electric, the Electric Auto Association and several entrepreneurs, and many small individual contributions. We've benefited from donated services including printing.

We've been trying to raise funds to take advantage of many important opportunities to influence public policy that required a budget for travel, conference, exhibitions and to pay people.

We've worked to gain support from high-wealth individuals with an environmental awareness. We've begun to lay the groundwork for for-profit entities.

MESSAGES THAT HAVE KEPT US GOING

"A brief line, thanking you for the clear PHEV vision you and your organization are steadily spreading across our nation. I cannot tell you how happy I am to see this message finally beginning to gain traction across a wide variety of venues. I only wish I could offer greater financial support than my small PayPal donation. Warm Regards" -- *Matt Fishbach, Science teacher and education technology designer, Oakland, CA, Nov. 10.*

"Congratulations! This must seem like a milestone reached for you. God bless you and all the work you have done. I proudly display my bumper sticker and have had dozen of people comment on it. Keep up the good work! I thank you from every "little" person in the United States who now see light at the end of the tunnel. God Bless." -- *Patty Ericson, Pennsylvania, Oct 4.*

"I am very excited by the PHEV. I am an Earth Science Professor at a Community College in Michigan. I am promoting PHEVs in my classroom and to all of my peers at the college. I have an informational bulletin board dedicated to the PHEV. I catch students reading about it all the time. The PHEV has given me a reason to wake up each day. It's such a great idea. I don't have a PHEV or even an HEV. I can only afford one car and it is an old fashioned gasoline model (2002 Honda Civic). Again, congratulations on your success so far." -- *Bob Hunckler, St. Clair County Community College, Port Huron, MI, Oct 10.*