



POLICY ACTION MEMORANDUM

TO: State Legislators (and their staffers)

FROM: Gail Slocum -- (650) 465-3436 -- gslocum@calcars.org

DATE: April 14, 2005

RE: Policy Initiatives to Accelerate Clean Cars Technology Adoption in CA

Our State is not doing enough to specifically accelerate adoption of hybrid and next generation pluggable hybrid-electric vehicles (PHEV), clean-technology solutions that can more than double current fuel efficiency. State and local government fleet adoption will lead to adoption by other fleets and individual purchasers, producing further benefits we will all enjoy. Although some positive efforts have been made in recent years' legislation, it has not been enough to spur meaningful changes to yield the many benefits cleaner cars provide, including:

--Energy Independence: Gas prices are higher than ever, and we are increasingly vulnerable to future oil price spikes. Reducing our dependence on oil from the unstable Middle East is a war issue and fuel efficiency is a key national security matter.

--Air Quality Improvement: Exhaust from cars and trucks is the major reason the Central Valley was recently declared to be an "extreme non-attainment zone" under the Clean Air Act, like L.A. Harms to health and productivity have been proven.

--Reversing Global Warming: Concerns mount about the early effects of global climate change, with serious economic implications for California including Sierra runoff that is already two weeks earlier than in the early 20th C. Because 50% of California's greenhouse gasses come from the transportation sector, California must take the lead in clean car technology innovation.

--Restoring Jobs: American auto manufacturing jobs can resurge, including in California, if our cleaner car innovations satisfy worldwide need to meet Kyoto Protocol carbon caps.

You can play a crucial leading role in helping rapidly advance the needed policy solutions to realize all these benefits by getting clean car technologies on our roads faster.

This memo summarizes a range of policy options for effective action, developed in part by the California Cars Initiative (CalCars.org), a nonprofit that is demonstrating these technologies (its PRIUS+ conversions that get over 99 MPG! which was recently profiled in national media including The New York Times, and which helped inspire journalists like Newsweek's Fareed Zakaria to envision biofueled cars getting 500 MPG of gasoline). Other PHEV advocates range from unions and environmentalists, to many military experts, neoconservatives and even evangelists (whose recent agenda seeks "creation care" through stewardship technologies. PHEVs are a winning, cross-cutting solution!

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We are ready to help you take your place in making the needed changes that will allow us all to look our grandchildren in the eye and say we did everything we could to rise to this huge challenge. I would like to set up a meeting with you and your staff soon to discuss this further.

Our meeting can include several clean vehicle technology experts whom I believe to be some of the best minds in this field – both practical and creative! Together we would like to answer your questions and provide you with whatever other information you need. Together we can move California forward more quickly to ensure that our State leads the way, and reaps the economic, environmental, and national security benefits of clean vehicles as soon as possible.

Thanks!

Gail Slocum
Former Mayor, Menlo Park, CA
Senior Advisor to The California Cars Initiative (CalCars)

I. OVERVIEW OF POLICY OPTIONS (described in greater detail in section IV. below)

- **Immediately create a working group charged with coordinating work on PHEVs, to include State agencies and all stakeholders; require this group to present a report setting forth recommended goals and technology adoption progress for CA on a 1, 3, 5 and 10 year horizon.**
- **Establish a “Golden Carrot” incentive program to spur PHEV development and production.**
- **Implement flexible state fleet requirements with a percentage of fleet purchases to be of currently available gasoline hybrid vehicles. (a la the Federal EPACT of 1992).**
- **Require State Agencies to evaluate all environmental/energy impacts of vehicle technologies/fuel types before proceeding with future purchases using life cycle costs as a key factor (helps HEVs and PHEVs pencil out)**
- **Change the CARB regs to allow a Zero Emissions Vehicle credit (Gold designation) for that fraction of PHEV operation with no emissions (before hybrid gas engine kicks in).**
- **Facilitate/Require State, County and Municipal fleets to work together to negotiate lower bulk purchase prices through pooled buying for available hybrids and PHEVs). (The City of Austin Texas, led by its public utility, Austin Energy has passed a commitment to buy PHEV Sprinter Vans and is reaching out to others).**
- **Commit the State to purchase several (ideally 5) of the new DaimlerChrysler PHEV Sprinter Van prototypes developed in collaboration with EPRI in Palo Alto).**

- **Seek public-private partnerships to gain funding to supplement or match state funds for cleaner CA fleet purchases (e.g. foundations and corporations).**
- **Amend the State Tax code to provide a significant tax break for corporations like Hyperion who implement employee benefits of payments toward purchase of vehicles that get 45 MPG or more).**
- **Amend the State Tax code to provide a tax credit for \$3,000 for the purchase of an HEV (or later a PHEV).**
- **Consider creating an SUV emissions fee (or "feebate"), the proceeds of which would be used to provide incentives to develop PHEVs and other LEVs, and to help consumers of LEVs offset initial price differential (e.g. \$3,000 for a hybrid)**
- **Require utilities to provide economically attractive off-peak overnight charging rates for PHEVs as a customer incentive.**
- **Put together a package of incentive to induce an auto manufacturer to start building hybrids or PHEVs perhaps at the NUMMI plant in Fremont, CA or perhaps at a decommissioned military property. (An assembly plant for PHEVs designed in California but manufactured internationally is also a possibility.**
- **Support creation of a series of conferences in major CA cities to educate the public about climate change and the importance of clean technologies like PHEVs for our future. Groups like CalCars, California Electric Transportation Coalition (CaIETC), EPRI and others could partner with CARB, CEC etc.**

II. California's Environmental and Economic Challenge Cries Out for the PHEV Solution

California's entire Central Valley was recently declared to have deteriorated to the level of "extreme non-attainment" under the Clean Air Act. And ten of the hottest years since 1880 have occurred since 1990, as greenhouse gases have increased sharply in the atmosphere, up about 30% from pre-industrial levels, with human activities such as burning fossil fuels largely responsible for the 1 degree climate increase already seen. Just this 1 degree increase in average temperature has already caused changed weather patterns, with Sierra snow runoff in California occurring about 2 weeks earlier than before (presaging hydro-electric concerns as well as water reservoir supply challenges). Experts believe that at least another 1 degree and as much as another 5 degrees of warming will occur in California by 2070, depending on what actions are taken now. Increased average and peak surface temperatures threaten to disrupt the natural functioning of the planet that provides the basis for all human activities, including the global.

At stake is California's economy, not just its environment. The new technology solutions needed will create many jobs, and the air pollution and greenhouse gas reductions will increase productivity, address environmental justice issues, as well as stave off the worst effects of climate change (flooding near current sea levels, heat waves, fires, reduced snow pack and hydro-electric capacity, etc.) Insurance companies and financial rating agencies

are now acknowledging the impacts of climate change, and are further driving home the economic consequences of any further delay in effective action.

The United States is the world's largest emitter of GHGs, accounting for 25 percent of global emissions, yet with under 5 percent of the world's population. California, whose economy ranks sixth in the world, boasts the largest and most diverse economy of any state, including the biggest agricultural economy. Our beloved Golden State is home to 36 million people, and over 20 million passenger vehicles. **The largest single contributor to greenhouse gases is transportation (source of nearly 50% of greenhouse gases**, well ahead of electricity generation at 25 – 30%). Why? Because our transportation system is currently 99% dependent on petroleum to power combustion engines. And about 60% of the oil we use is imported from the politically unstable Middle East, making clean vehicle technologies not only an air quality and GHG issue, but also a matter of national security.

The time has come for California to act, even as our current Federal government has failed to lead the way, on air quality and climate change issues. The California Air Resources Board (CARB) recently unanimously approved regulations to implement the Pavley Bill (AB 1493), requiring the auto industry to cut GHG emissions from cars and light trucks beginning with 2009 models (up to 30% reductions by 2016). Although these regs have since been challenged in the federal courts by the auto makers, Governor Schwarzenegger is committed to helping out state agencies in this fight. But there is much more California can and must do. Next generation clean car technologies building off the successful gasoline-only hybrids like the successful Toyota Prius, allows these vehicle to be plugged in overnight at low off-peak electric rates, more than doubling their fuel economy (a plug in PRIUS+ gets over 99 MPG). A commitment to add such plug-in electric hybrid vehicles (PHEVs) to State and local fleets, would spur automakers to build a wider range of vehicle types that will then be available for others to purchase. Such efforts could also help revive auto companies that are seen as offering "nothing new and exciting." Both in America and worldwide, markets are growing for clean technologies, driven internationally by the Kyoto Protocol's carbon caps which went into effect February 16, 2005 in 36 countries – all industrialized countries except the US and Australia. For example, Canada just announced a multi billion dollar program to tackle climate change more aggressively.

(See attached additional factual statements supporting need for to quickly implement these policies, in Appendices 1 and 2 at the end of this memo. Additional background is found in articles and other documents provided separately and found at www.calcars.org. These may all be useful as you develop your positions, proposals, and speeches.)

III. The Hybrid and Plug-In Hybrid Technology Solution Is Here Now

Currently an increasing number of gasoline hybrid vehicles (HEVs) are available from a range of manufacturers, with about twice the energy efficiency as standard combustion engines. The available options are expected to increase in coming years. We can influence how fast that happens.

Though gasoline hybrids represent an important step in the right direction, the real mid-term solution is what are often called "plug-in" hybrid electric vehicles (PHEVs) which get up to 3-4 times the energy efficiency of standard combustion engine vehicles, by allowing the option to plug in the vehicle overnight to a standard 120 volt plug and daily charge a battery that provides clean electric-powered local travel. Overnight charging allows the owner to be billed at a special, very low off peak low emission vehicle electric rate.

Several respected studies have found that PHEVs provide the best medium term bridging technology while we await the arrival of hydrogen fuel cell vehicles, not expected to be widely available for at least 15 to 25 years, assuming technical and infrastructure issues can be overcome.

Bold and visionary policy initiatives are now needed to accelerate production and adoption of a wide range of fuel-efficient vehicles, and especially to jump-start PHEV manufacturing. Effective efforts will include some combination of manufacturer and consumer incentives, as well as flexible requirements for hybrid and PHEV adoption in fleets, to create critical mass of early demand. Below in more detail are several specific policy options for your immediate consideration so that you can play a leading role in 2005, 2006 and beyond on this critical issue.

IV. Policy Action Options California Can Quickly Enact:

1. Immediately implement flexible requirements, ideally setting a percentage of state fleet purchases of currently available gasoline hybrid vehicles. Gasoline only hybrids offer, in general, about twice the fuel efficiency of standard vehicles with no sacrifice in handling or power.

- See evolving list of currently or soon-to-be-available gasoline hybrid technologies (SUVs include: Ford Escape, Toyota Highlander, Lexus, and sedans include: Toyota Prius, Honda Civic and Accord). To compare estimated increase in MPG to similar combustion-only vehicle, and relative prices, see Fact Sheet and Information Chart at <http://www.newdream.org/hev/index.php>
 - Spreadsheet analyses can show break-even or cost savings over time at certain gasoline price levels, given reduced gas and maintenance costs, and possible inclusion of a monetized equivalent value of the air quality improvements.
- A model for fleet requirements is the federal Energy Policy Act (EPAct) of 1992 which required utility as well as state and federal government fleets to effect significant increases in used of alternative fuel vehicles by 2000 (back in 1992, options were compressed natural gas and battery electric, with no gas backup and limited range). (Efforts are under way to add HEV and PHEVs as eligible, as fleets today don't have enough vehicle options in the market to comply.. Your leadership in gaining widespread support for such federal changes should be part of your game plan.)
- A change in fleet-buying protocols may also be able to be accomplished even more quickly by working with the Governor, who may be able to effectuate many elements through Executive Orders.
- California should require state agencies to evaluate all environmental/energy impacts of technologies/fuels before proceeding with future purchases. HEVs and PHEVs will benefit if life cycle cost become a key factor in the purchase decision process.
- CA should be able to negotiate a bulk purchase price through pooled buying for hybrids. (This appears to be the aim of a Fran Pavley bill in collaboration with Controller Steve Westly's office)

- As an example, Roger Duncan, VP of Austin Energy, has gotten the City of Austin, Texas to pass a resolution moving that City toward a commitment to purchase a significant number of PHEV Sprinter vans. Austin Energy has also reached out to other localities with municipally-owned utilities (like New York State, L.A. and Seattle) to join Austin in placing one large bulk order with the goal of almost single handedly creating an immediate market for PHEVs, speeding up production and enabling development costs to be spread over more units. Austin also has a vision of linking this PHEVs with an all-renewable electric energy grid (a wind powered PHEV would be a total zero-emission system!) California can do likewise.
- **A key, immediate PHEV opportunity is to promptly commit the State to purchase several (ideally 5) of the new PHEV Sprinter vans DaimlerChrysler is now starting to produce** as a result of the efforts of the Electric Power Research Institute (EPRI) and others. Daimler-Chrysler is the first automaker to start producing a PHEV. Its Sprinter van is a 15-passenger commercial vehicle that is in demand for numerous fleet uses. The current production plan calls for the introduction of the first several vans this year, with several dozen more planned for 2006 and then 100 or more in 2007. Though this will be a relatively small number of PHEVs, it will be of huge PR significance and will improve the likelihood that manufacturers will produce a wider variety of PHEVs, like light duty vehicles (SUVs and sedans). *It would be a shame if traditional early adopter California were to lag behind Texas, Missouri and Amsterdam who are already moving forward on this important new PHEV technology.*
 - The PHEV Sprinter vans get up to 50% better gas mileage, and produce up to 65% fewer greenhouse gas emissions than do non-plug-in hybrids. Their all-electric range of 20 – 60 miles with no emissions could take care of a full day's urban driving. If they aren't then plugged or run out of charge, they operate as a regular gasoline hybrid, which is still far more efficient than a standard combustion engine.

2. Raise awareness about PHEVs and advance demonstration of PHEV technology in CA. State political leaders including legislators and opinion and business leaders need to know about the PHEV opportunity and benefits. This should include a chance to see the CalCars PRIUS+ conversion (gets 90 MPG plus electric costs) and that of its partner, EnergyCS (gets 120-180 MPG), and a visit to Professor Andy Frank's shop at U.C. Davis where he and his students have converted a half dozen largely SUV sized vehicles into, PHEVs during the past decade. Several have won national student competitions.

- You can now seize a prominent leadership role and take to the bully pulpit on not only gasoline-only hybrids but especially PHEVs. You should strongly consider personally investing in a PHEV conversion (e.g., you could buy one of the first new Lexus SUV hybrids this April and have it "green-tuned" into a PHEV that you could drive as your main car, to show you are personally "walking the talk." (That is, DRIVING the talk...). A press release and a speech with that car in the photo would help the overall initiative (see speech ideas in section V. and the Appendices below). Other political leaders or opponents of yours would then try to follow suit, but you would already be in the lead.

- Support creation (either through private, public or joint sponsorship) of a series of conferences, in Sacramento, SF, LA and San Diego to educate and show the demo PHEVs too, with media coverage about PHEVs (including face time/name ID for you through news coverage, too). The California Electric Transportation Coalition (CalETC) and EPRI are potential partners for such efforts

3. Take State actions to spur further development and manufacturing of a wider range of PHEVs

a. Help CalCars find private investors/foundations to help fund PHEV conversion / demonstrations on the Lexus, Toyota Highlander and the Ford Escape hybrid SUVs.

b. Make sure that PHEVs are included in implementation programs resulting from documents such as the Blueprint for the Hydrogen Highway, issued in March 2005. It includes a package of legislative ideas, some incentives and local government fleet requirements. (We are in discussions with Shannon Baxter of CARB and Daniel Emmett, who have been coordinating the effort.). You and other legislators could make amendments to any resulting legislation proposed so as to expressly include PHEVs incentives/flexible fleet requirements, etc.

c. **Immediately create a working group charged with coordinating work on PHEVs**, which has thus far proceeded in 10 or so smaller, disconnected pockets of activity (e.g., EPRI, the Utilities, U.C. Davis Hybrid Center, the California Cars Initiative (CalCars), CARB, CALTRANS, SCAQMD and other AQMDs, CEC, CalEPA, Resources, Gen Services, BT&H, Controller, Treasurer, etc. – the major affected state agencies and others involved...). This “CA PHEV” working group could present a report setting forth common goals and more concrete plans/recommendations for 1-,3- 5- AND 10- year horizons.

d. **Help open meaningful, productive conversations with manufacturers** (possibly bringing them to the table working with the Treasurer and Controller, using CalPERS leverage?). We need to find someone inside an OEM like Ford to and have the right person get to them and ask “What is it you WANT that would cause you to produce PHEVs?” (What package: Grants? Tax Credits or other Incentives? Regulatory Benefits?) If we can find others with real leverage over the OEMs (perhaps including U.S. Senators they have to listen to), we could not only find out this crucial information, but point out to them that a manufacturer (like Ford) could leapfrog Toyota which, for now, has the “green” mantle from press coverage due to the success of the Prius. Whoever makes and markets the first successful PHEV can take that mantle away from Toyota... ideally this would be a U.S. company, but a foreign company could easily ace us out once again (one strong possibility seems to be South Korea’s Hyundai Corp.).

- **The biggest need is to overcome manufacturers’ current disinclination to produce PHEVs.** Many OEMs have explored PHEVs in their own secret in-house “skunk works,” but none have any apparent plans to produce PHEV sedans or SUVs anytime soon (other than the DaimlerChrysler Sprinter Van discussed above). We need to show enthusiasm for and demonstrate a market for PHEVs to really motivate a mainstream manufacturer to come forward and make a wider range of affordable PHEVs in the next 3-5 years.
- **In the meantime, the interim solution of vehicle conversions/retrofits of hybrids into PHEVs needs support.** An example is CalCars’ current PRIUS+ project. It must be remembered that AC Propulsion and other third

party conversions were instrumental in moving forward pure electric vehicles until eventually OEMs stepped in. One or two PHEV advocates may feel conversions undercut their nascent efforts with OEMs. However the conversion approach will fade away once manufacturers are producing. It is not an either/or situation, and serves as a spur, providing proof of the practicality and benefits of new solutions, as seen with pure electrics in the 90s.

e. Establish a "Golden Carrot" incentive program to spur PHEV development and production. The PR and reward of the prize will help to encourage automakers to produce the next generation of advanced technology hybrid vehicles, which have far lower emissions and use much less gasoline than the gasoline hybrid electric vehicles available today. The concept here is to offer, on a competitive basis available to all automakers and others, a large winner-take-all financial prize (\$10-50 million) to a company that agrees to develop and manufacture a PHEV that meets or exceeds performance criteria developed by the State of California. (Example: 25% reduction in NOx and ROG from levels of the current Prius hybrid; 25% reduction in greenhouse gas emissions from levels of current Prius; 40% reduction in petroleum consumption from levels of Prius.) CARB or another agency would conduct the competition and judge the entries. As was the case with the successful utility-sponsored Golden Carrot refrigerator program, half of total award would be provided upon development and testing of prototype vehicles; the remaining half would be given as the vehicles are made available in California, at a rate of \$3,000-\$5,000 per vehicle actually sold or leased.

f. Take steps to provide the manufacturers with guaranteed PHEV sales through flexible fleet requirements, as well as to provide adequate regulatory incentives to overcome inertia. (again, similar to EPACT of 1992 fleet requirements on utilities)

- **Change the CARB regs to allow a Zero Emissions Vehicle credit (Gold designation) for that *fraction* of PHEV operation that would be on electric battery only (before gas engine kicks in).** Currently only pure electric or fuel cell vehicles qualify for the Gold level, and PHEVs are placed entirely in the Silver designation. The change to part Gold, part Silver for PHEVs would provide a further regulatory incentive for manufacturers to produce PHEVs.
- Other innovative regulatory incentives should also be considered, like **mobile to stationary credits for PHEVs** and other advanced technologies.
- There have been Executive Orders in the past for clean California fleets, *if money were available*, but since no money was approved, it hasn't happened. We need a stronger commitment now as well as creative ideas. One controversial possibility is a gasoline excise tax to fund clean fleets and consumer incentives to make up the cost differential. Monies already earmarked for air quality improvements could be designated for increased adoption of efficient HEVs and PHEVs in state and local governmental fleets, and for grants to private fleets as well.
 - It may be possible to supplement or match state funds those from with private sources, notably a consortium of foundations. Corporations could also participate: Hyperion Software Corp. in Silicon Valley has pioneered by establishing a \$1 million per year

fund to provide an employee benefit of \$5,000 to clean car purchasers.)

- Couldn't the state tax code be amended to provide a significant tax break to corporations that implement a program like Hyperion's \$5,000 employee benefit? Publicity for do-good companies could then get more to step forward.
- Require utilities to provide economically attractive off-peak (overnight) charging rates for PHEVs as a customer incentive. (E.g., PG&E has the E-9 residential rate available for LEVs with a 5 cent/kWh off peak charging rate. Need to ensure that PHEVs qualify for off-peak charging at all CA utilities, rather than current full residential non time-of-use rates) Similar to incentive rate for agricultural pumps to get them to change out diesel generators for much cleaner electric, for environmental reasons (a public purpose rate)
- Put together a package of incentives seeking to induce an OEM to start building hybrids or PHEVs out of the NUMMI plant in Fremont, CA (built as a joint venture between Toyota and GM, it is the only auto plant remaining in CA). An assembly plant for PHEVs designed in California but manufactured internationally may also be possible.

V. Legislative Front – 2005 and 2006

We have identified several key bills relating to low emission vehicles for 2005 that we encourage you to have your staff review and consider supporting (in numerical order). Possible 2005 amendments (or new 2006 bills could be explored to further effect policy changes described above):

*****AB 1007** (Pavley – Air quality: Alternate fuels) [*Regulatory*]

Requires CARB to develop and adopt recommendations for a state plan to increase the use of alternate fuels, using a full fuel cycle analysis and provide a set of future goals.

AB 1357 (Ruskin – State Motor Vehicle Fleets)

Requires DGS to compile and maintain prescribed info on the number of bi-fuels natural gas and bifuels propane vehicles purchased or leased by the state during the year, and the total amount of fuel used during the year by those vehicles as of December 31 of ea. year.

AB 1223 (Leno – Manufacture: Direct Sales: Low Emission Vehicles) [*Incentive*]

Clean Power Campaign-sponsored bill allowing for the sale of SULEVs and ILEVs to an individual, bypassing motor vehicle dealers.

AB 1269 (Pavley – Clean Air/Water, Coastal Protection & Parks Act of 2007) [*Incentive*]

If adopted, would authorize the issuance of bonds for purposes of financing an air and water quality, coastal protection and parks program, including the Carl Moyer Program.

AB 1365 (Ruskin – Greenhouse Gas Emission Levels) [*Regulatory*]

Includes as an additional state planning priority to provide for the reduction in greenhouse gas emissions of at least 7% by 2010 and 10% by 2020 on the 1990 GHG emission levels.

******AB 1660** (Pavley – Vehicular air pollution: alt fuel vehicle purchasing) [*Incentive*]
Creates the California Energy Efficient Vehicle Group Purchase Program in the DGS to encourage the purchase of energy efficient vehicles, as defined, by local and state agencies through a group purchasing program.

SB 153 (Chesbro – California Clean Water/Air, Safe Neighborhood Parks and Coastal Protection Act of 2006) [*Incentive*]
Bond Measure

SB 225 (Soto – Carl Moyer Program) [*Incentive*]
Allows CARB to provide Carl Moyer grants with a higher cost-effectiveness that reflects consumer price index adjustments.

SB 426 (Simitian – CA. Alt. Energy and Advances Transportation Financing Authority: Renewable Energy Program) [*Incentive*]
Spot bill relating to the CA. Alt. Energy and Advanced Transportation Financing Authority renewable energy program.

SB 467 (Lowenthal – Carl Moyer Memorial Air Quality Standards Attainment Program) [*Incentive*]
CalETC-sponsored measure requiring CARB to revise the grant criteria and guidelines to incorporate projects which an applicant turns in a non-road internal combustion engine vehicle or equipment that the applicant owns and which still has some useful life, coupled with the purchase of new electric equipment or a vehicle that is in a similar category or that can perform the same work.

******SB 757** (Kehoe – Petroleum Demand Reduction Act) [*Regulation*]
Enacts the Petroleum Demand Reduction Act, which would, among other things, authorize CARB to adopt regulations requiring fleet vehicles, including publicly owned fleets, to purchase and install alternative fuel vehicles and advanced transportation technologies where technologically feasible and cost-effective, taking into account lower petroleum consumption, increased efficiency, and life cycle operating costs.

SB 863 (Florez – CA. Clean Air Bond Act) [*Incentive*]
Enacts the CA. Clean Air Bond Act which, if adopted, would authorize, for purposes of financing air quality programs, including the purchase of ZEVs, through issuance of bonds in the amount of \$5 billion.

SB 975 (Ashburn – Air Quality: Biodiesel Fuel) [*Regulatory*]
Provides that any public agency or regulated utility that uses biodiesel fuel in a vehicle engine to comply with federal ambient air quality requirements (Clean Air Act) is exempt from any requirement to retrofit that vehicle engine until the retrofit engine is approved for use with biodiesel fuel.

Also, a key Climate Change related bill is:

AB 32 (Pavley – Greenhouse Gas Emissions: California Climate Registry.)

Expands the responsibilities of the Cal. Climate Action Registry by specifying the Registry work in coordination with CalEPA and the CEC to adopt procedures and protocols on GHG emissions for specified industrial sectors.

We at CalCars and other PHEV advocates can be of assistance to you as you evaluate these bills during the 2005 legislative year, as well as to make plans for new bills in 2006.

VI. Position Statement and Ideas for Your Public Speeches

Once you determine which policies you most strongly wish to pursue in 2005./2006, we are available to assist your staff in developing a press release crisp position statement that you can include in speeches, newsletters, and on your website etc, focusing on how these policies enable California to catalyze support for PHEVs, influence automaker decisions on new hybrid and PHEV models, and perhaps bring a new industry to CA.

If you desire a longer, major policy speech and paper we could assist staff in preparing that as well. This could include your personal endorsement for PHEV conversions/retrofits in the shorter term. You could also consider buying your own hybrid and having CalCars "green-tune" it into a PHEV, for a photo op combined with laying out a commitment to securing in the longer-term manufacture of PHEVs by automakers. We would be happy to include you are a featured leader to help us kick off of several educational conferences statewide about the public benefits of PHEV advances.

Appendix 1 includes info to assist in development of speeches/position statements.

Attachment 2 is an excellent recent speech by Roland Hwang to Detroit Automakers, regarding the opportunity with gasoline hybrids (could be expanded to include PHEVs too). Roland's speech can serve as a model, and perhaps he would give permission for some or all of it to be paraphrased by you, as this will further advance a cause that is dear to Mr. Hwang and the Natural Resources Defense Council.

Appendix 3 introduces the California Cars Initiative, for which I am a Senior Advisor.

I look forward to working with you all to make these promising new technologies a reality for California to bridge us through the critical 2005 – 2020 period to secure greenhouse gas reductions and petroleum independence while preserving our auto-centric lifestyles! Please continue to call on me and I will serve in whatever ways I am able.

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P.S. I am happy to set up a meeting with you and your staff and several top PHEV experts to help answer your questions. We expect to be in Sacramento later this spring to do so for a large number of interested Legislators. Call me at 650 465-3436. Thanks.

APPENDIX 1

Rough Policy Speech Ideas Rolling Out Rapid Spread of Hybrid Vehicle Tech Solutions

“Today, I am announcing a 5-year plan to help California once again lead the nation, through new auto technologies that can revitalize our economy, help clean up our air and environment, and put American on a path to independence from oil from the unstable middle east.

We can't afford to wait for the exciting prospect of hydrogen fuel cell vehicles because that dream is at least 15 to 25 years away. Much can be done the meantime.

Starting now, California must rapidly adopt hybrid cars that can get upwards of 50 miles to the gallon – doubling our fuel economy. Our state and local fleets can lead the way on hybrids. And incentives for all California car buyers can help us all be part of the hybrid revolution too.

But we also need to spur manufacturing of the next generation hybrids, an even more advanced technology that will allow us to choose to plug-in our hybrid car overnight, giving us over 100 miles to the gallon without a loss of driving performance. An economic renaissance will result which will revitalize a core American industry -- our auto manufacturers – creating new jobs and helping stem the tide of job outsourcing to overseas companies set to take the lead if we don't.

But more than just economics are at stake – the energy independence hybrids offer is vital to our **national security**.

- Just ten year ago, the U.S. was 45% dependent on foreign oil. But today that's risen to **60% foreign oil dependency**. And that's expected to climb to about 75% in the next 20 years unless something changes soon.
- The U.S. depends on world oil supplies because we have only 3% of the world's oil reserves here on our own soil. And as we all know, a majority of world oil is in the unstable Middle East.
- This makes our way of life vulnerable to sudden disruption, and effectively holds our young men and women in uniform hostage to our dependence on foreign oil.

The path we are on is not sustainable – it's not good for our economy, jobs, our environment or our national security. Something has to change, and technology and American ingenuity will once again show the way.

A major focus needs to be on the fuel we use for transportation – especially cars and trucks.

- America's biggest use of petroleum – over ½ of the petroleum supplies we use -- goes for transportation.
- And our current transportation systems are 99% oil dependent. We must move away from single sourcing to a multi-fuel future to achieve energy independence.

Obviously California can and must be a leader. Our state is, on its own, the 3rd largest gasoline user in the world – some 14 billion gallons a year. We have the most cars per person anywhere in the world. Now no one is going to have to give up having great cars, but we have to apply American ingenuity to make them more fuel-efficient.

The money we save will be immense.

Imagine if half of the \$100 billion America now spends on gasoline were reinvested. This of what that could do for America's families, businesses and meeting pressing public needs like better schools and access to good health care for those without it. What if, within ten years, America could cut by at least a third over the over \$200,000 we now spend *every minute* overseas just to buy oil. We can do it!

- But it's not just the money on gasoline that we would save. We also currently spend almost \$200 million per day just for our military presence in Iraq. Even in peacetime our military presence in the Middle East had cost America \$50 billion a year. Energy independence would surely help reduce our vulnerability to such high costs because it would relieve one driver for our Middle East presence as well. I would rather spend most of that money right here in America if we can. And we can do it!

Yes, we all know that reliance on overseas oil is risky as well as costly.

- Last year the price of gasoline spiked up to \$50 a barrel (it had hovered at around \$25 a barrel for many years).
- Upward price pressure will continue a world demand for a limited supply of petroleum gets heavier, for example due to the rapid economic development of countries like China and India in recent years. And it's not going to let up.

Petroleum is not a renewable resource --- it will run out one day. Exactly when that will happen depends on what we do now -- how much gas we all use as well as how much our drilling technologies allow us to find and extract. But since we know the world will one day run out of oil, prudence demands that we plan ahead and take steps now to avoid painful disruptions later.

Instead of waiting for the economic dislocation of our way of life that a crisis will bring, we need to spur development of the technologies that will allow us to drive cars with the same performance we enjoy today, but with far less and eventually no dependence on petroleum.

The benefits will not only be seen in a resurgence of job creation by American auto manufacturers [INSERT SOME IDEAS FROM ROLAND HUANG 1/17 SPEECH in Appendix 2 below] Our Big-3 automakers are already several years late to the party, with Japanese manufacturers first out of the box on hybrids. Because of strong and growing overseas demand for more efficient hybrid vehicles, over 100,000 American jobs are now at stake. Global demand for hybrids is estimated to rise from about 200,000 units per year to more than 1 million by 2010 according to ABI Research.

Another major benefit of quickly moving to increase our use of more fuel efficient cars will be a **cleaner environment**.

- Doubling the fuel economy of just 500,000 cars will eliminate one million tons per year of the greenhouse gas carbon dioxide. This is very achievable as gasoline hybrids roughly double fuel economy over the same standard combustion only vehicle, and PHEVs triple that efficiency – with no loss in performance or range.
- The air quality in California's Central Valley has recently degraded so much that it has been declared to be of the same "extreme non-attainment" status as Los Angeles has been under the Clean Air Act. In fact most of the State's population lives in federal non-attainment areas. That is areas that have not, despite efforts to date, been able to achieve federal air quality standards.
- The fact that current levels of pollution in California exceed health standards poses especially high risks for children who are suffering from skyrocketing rates of asthma, and chemical particles in the air also threaten the lungs and hearts of us all, including especially our elderly. And there is a disproportionate impact of unhealthy air on low-income and minority communities because of where they live relative to sources of air pollution.

The transportation sector is the largest source of air pollution in California. Our efforts must focus on transportation technologies to achieve energy independence, spur economic growth, preserve our way of life, and improve our environment all at the same time. Hybrids and soon after them plug-in hybrids must be a central part of that effort.

- (Need to cite data on current average automobile MPG in America – it's somewhere in the low 20's, no more than 30 MPG --) Right now America is at a 20-year low on fuel economy of cars. Today's SUV's get worse fuel economy (about 13 MPG) than a Ford Model T from 100 years ago. Now obviously today's cars are better performing but we should be able to do better. National Academy of Science studies show that we can dramatically improve fuel economy in all sizes of vehicles including SUVs and still get great performance. But we need real choices in the marketplace. Of the 30 cars now getting over 30 MPG, almost all are compacts or subcompacts.

APPENDIX 2**Hybrids and the Future of Detroit (by Roland Hwang of NRDC)****January 17, 2005**

(Presented before the 2005 Automotive News Congress by Roland Hwang, vehicles policy director with NRDC's air & energy program.)

"Thank you very much. It's a pleasure and an honor to be here this afternoon. I want to start by telling you a little about myself.

I am the son of an immigrant. My father came to the United States after World War II, to get a better education and to be part of the American Dream. And part of that dream was to own a car, an American car to be exact. My father was a loyal "Ford" man. He wouldn't have dreamed of buying anything else. Not only were Fords great cars, but my father wanted to support American workers. And I think that many of us in this room still share those values, supporting American workers building the best cars in the world.

I feel very fortunate to have my job in this remarkable time of change for Detroit automakers. I remember when I was a kid, waiting for Car and Driver and Motor Trend magazines to show up in the mailbox, and poring over the latest new cars. I want to see that excitement, that emotional connection, remain centered here on the Motor City. But today's America is not the same as the one I grew up in, and the excitement emanating from Detroit seems have turned into a growing anxiety.

You probably know the story better than I do. The signs, quite frankly, are very troubling:

--The Big Three's market share hit an all-time low last year, and it's still dropping.

--Toyota is neck-and-neck with Ford as the No. 2 automaker in the world, and has its sights set on surpassing GM for the title of No. 1.

--Sales of what used to be Detroit's most profitable vehicles are slumping badly. As the inventories grow, plants are being idled and thousands of American workers sidelined.

--The industry is locked in a profit-sapping incentive war -- one in which the Big Three have to offer almost four times the discount of their Japanese competitors -- as much as \$6,000 per vehicle -- in order to move their inventory.

Meanwhile, customers are lining up to pay premium prices for advanced technology, fuel-efficient hybrids, mostly from Japan.

As one analyst said recently, a "perfect storm" is brewing. The bottom line is that Detroit is fighting for its survival. High retirement and medical costs are an important part of the problem.

But consider these critical facts:

The era of cheap oil is over. Detroit has been riding a wave of cheap oil for over a decade now, but \$20-to \$25-per-barrel oil is a thing of the past. With global production capacity continuing to struggle to keep up with rising demand, we'll be lucky to see oil ever drop below \$35 or \$40 per barrel.

Terrorists are well aware that with one strike, they could take a million barrels or more of Saudi crude off the market overnight. That's just one possible event that could easily send oil prices soaring to the \$80 per barrel in today's dollars that we saw at the height of the second oil crisis. Three or four dollar-a-gallon gasoline? It's possible, even likely over the next five years.

And let's not forget about global warming. Most of the world's industrialized countries have now committed to cutting global warming pollution. Those nations will only be importing clean vehicles. And these are your most valuable foreign markets. In North America, automakers are fighting a rearguard action against a groundswell of state demand to regulate carbon pollution from tailpipes. And the automakers have virtually no hope of stopping efforts in Canada to set new CO2 pollution standards.

These forces mean that automakers are coming under increasing pressure to build clean and efficient vehicles. Even the Chinese have adopted increasingly stringent fuel economy standards. And the Chinese market may surpass the U.S. market in size in about 10 years and is critical to the fortunes of automakers.

To meet these challenges there is a simple prescription: compete. Build the best damn vehicles in the world; build vehicles that inspire and excite, vehicles that are better than anything else out there. And build with the clean, efficient powertrains the market needs now. These vehicles are hybrids.

There's no doubt the market for hybrids is set to take off. Over the next three years, the number of hybrid models will increase to almost 20, and by 2012, there could possibly be more than 50 models.

These are real volumes, and real value. If you don't build them, someone else will, and they will take your market share. Even under a business-as-usual scenario, the global market for hybrids is by one estimate 4.5 million units by 2013 -- perhaps \$65 billion in the U.S. alone in just eight years' time. And those forecasts don't even take into account the prospects of yet another oil shock, or the inevitable consequences on vehicle standards when this country gets serious about joining the rest of the world in fighting global warming.

Given these grave risks, any prudent automaker, at the minimum, needs to adopt hybrids as a hedge against the next oil shock in the near future and to remain competitive in the next decade. The wrong choice now could put you of business. How much are you willing to gamble?

You may be thinking, "How do we turn this big ship around? Detroit can't turn on a dime." But it can, and it has. Remember what happened during World War II? In a few short months, Detroit turned from producing Studebakers and Buicks to Sherman tanks and B-24 bombers. It was the engine for the "arsenal of democracy," and we couldn't have won the war without it.

Today, we are facing a new challenge: the struggle to break the chain between our national security and our energy security. It's a challenge that can't be won by tanks and bombers. We need to reduce our dependency on foreign oil. We need to invest in America's factories, rather than sending our dollars overseas to oil-rich areas of the world that are unstable and increasingly hostile to our country. We need to put American ingenuity back to work building clean, fuel-efficient cars. And just like in World War II, we need all of America to come together, to pitch in, to help solve these problems.

I know we haven't always seen eye to eye, and we'll continue to have our differences. But we do have common ground to build on. NRDC believes that a healthy environment goes hand in hand with a healthy economy. We believe this country can continue to have strong economic growth and a high standard of living, while cutting our oil dependency and cutting global warming pollution. And we believe, quite strongly, that we must invest in America.

Last month, the non-partisan National Commission on Energy Policy recommended exactly that. This group, which included industry and environmentalists, Republicans and Democrats, called for \$3 billion in tax credits to manufacturers that build efficient vehicles and to consumers who buy them.

Let me end with a few thoughts about the future. Imagine a future where instead of being hounded by environmentalists, you're rewarded for helping cut petroleum dependency and solving global warming. In eight years, when my son Henry is 16, I want him to have the opportunity to buy a hybrid. And I want him to have his choice of high-quality, high-performance hybrids built in America.

We're eager to help make this future a reality. We're ready to fight to get you the resources you need to become competitive in this critical market.

This is not pie-in-the-sky. We can do this. Let's send those lawyers and lobbyists home (from both sides of the fence), and put American ingenuity to work.

Thank you very much for your attention.

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Appendix 3: Introducing the California Cars (CalCars) Initiative

The California Cars Initiative (<http://www.calcars.org>) is a Palo Alto-based nonprofit startup. We're a group of entrepreneurs, engineers and other citizens promoting high-efficiency low-emission cars and harnessing buyer demand to help commercialize advanced technologies. Somewhat uniquely, we focus both on public policy and technology development. Starting in early 2005, our efforts began to be noticed; in the first week of April 2005, we were covered in The New York Times and Business Week.

We're demonstrating the immediate opportunity and benefits of what are variously called "gas-optional or plug-in" hybrids (GO-HEVs or PHEVs). The next generation of hybrid cars can be based entirely on existing components. They're basically like some current hybrids but with larger batteries and the ability to re-charge conveniently, so local travel is electric, yet the vehicle has unlimited range. While hybrids may cut gasoline use by one-third, PHEVs can cut out another third. We see it as the future pathway to multi-fuel PHEVs, including biodiesel. And it makes hydrogen cars more affordable by reducing the size of the fuel cell stack and the amount of hydrogen stored.

We began with a prototype conversion we call "PRIUS+" -- it's a stock 2004 Prius to which we've added batteries and grid-charging, as a way to bring attention to plug-in hybrids and encourage car makers to build them. (We've replaced the battery control system but haven't tinkered with the Hybrid Synergy Drive.) Our proof-of-concept uses lead-acid, which we'll be replacing soon with nickel-metal batteries, and our Southern California partners have installed an even better lithium pack in their car to get 120 mpg + costs of electric power.)

We hope to persuade Toyota and other automakers to build PHEVs for a market we expect to expand as the Kyoto Protocols and parallel state and international greenhouse gas initiatives are phased in. We're demonstrating demand initially from early adopter individuals and institutions. We're working closely with other PHEV advocates to develop fleet orders from utilities, government and private companies. With our for-profit integration partners, we hope later this year to offer installed conversion "kits" to celebrities and entrepreneurs. We're looking first at cars that use Toyota's "Hybrid Synergy Drive" (Prius, Lexus, Highlander, Nissan), followed by Ford's Escape and other forthcoming hybrids.

We're also involved in advocacy and public policy, bringing together the growing attention given to this little-known technology (see our roundup at <http://www.calcars.org/kudos.html>). We're educating the large market of Green Californians who will pay extra for better cars. We're presenting the benefits of PHEVs, along with wind and solar power, as a coordinated response to two of our greatest challenges: global warming and energy security. We're exploring with public officials ways to provide incentives to auto makers to build PHEVs, and with government and industry suppliers the opportunities for California to become a design, production (perhaps) an assembly center for PHEVs.

We're a mostly-volunteer effort (including an open-source-style technology discussion group fully documenting our efforts), but we've received contributions from a well-known entrepreneur and a major foundation, with others to come.

Please see <http://www.calcars.org> for more information

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