CalCars
THE CALIFORNIA CARS INITIATIVE

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# 10 TALKING POINTS FOR PLUG-IN HYBRIDS

1. Why plug-in hybrids? Today's hybrids are efficient because they don't idle, they recapture braking energy into a battery, and they use smaller engines. They're a great step forward—but they're still 100% gas-fueled. **Use a larger, rechargeable battery and you add a second cleaner, cheaper, domestic energy source: electricity.**

2. Spend less time—and money—at the pump. A plug-in hybrid (PHEV) is like having a second fuel tank you always use first. Fill up at home from an ordinary socket, at a cost equivalent to less than $1/gallon. *[See box]*

3. Use no gas for short trips, still have unlimited range. If your batteries have a longer range than your commute, you'll almost never need gas. But if you forget to plug in, or take a longer trip, you have the same range as always from a gas engine—but in a clean, efficient hybrid.

4. Neo-cons and greens agree. PHEVs have been endorsed by an alliance of environmentalists and conservatives who see it as **the best way to cut our foreign "oil addiction."** Republicans and Democrats, former cabinet members Shultz and Woolsey, President Bush and Senators McCain and Obama have endorsed PHEVs. Mayors, Governors, Members of Congress, Silicon Valley Leadership Group, companies like **Google, AutoNation** and **Enterprise Rent-A-Car** want PHEVs.

5. Keep the earth cool. Even though coal powers half the nation's electricity, driving electrically produces **50+% lower greenhouse gases** than a gas-only car. This will only improve as utilities use cleaner, renewable energy.

6. Lead car-makers out of the wilderness. Fourteen car-makers are interested. **GM and Toyota are finally saying they'll build them, but not before 2010-2011.** Others might. Waiting makes the perfect the enemy of the good. **PHEVs offer carmakers the chance to leapfrog their competitors.** We need commitments to production. Today's batteries are "good enough;" for PHEVs; they will improve and get cheaper by the time car-makers are ready for mass-production of Version 2.0 PHEVs.

7. PHEVs are already here. For 15 years, Dr. Andy Frank at **UC Davis** has converted **Ford/GM** cars and SUVs. In 2004, non-profit **CalCars.org** converted the first **Prius** PHEV; groups and companies have since built over 200. Conversions are available to fleets and consumers for $5-$20,000+. So help get carmakers to build them!

8. Save money in the long run. In high volumes, car-makers could sell PHEVs for under $2,000-$5,000 more than current hybrids. Just as car buyers pay for large engines or leather seats without expecting a return on investment, early adopters will pay extra for the PHEV "green feature." A bonus: projections based on experience from electric car fleets show **PHEVs have a lower lifetime cost of ownership than any other vehicle.**

9. Send car battery power the other way. Recharged at night, PHEVs could someday send power to utilities in what's called "vehicle to grid" (V2G). PHEVs could be mobile generators to emergency centers after disasters. Your car could give your home backup power i outages and pair with rooftop solar in "vehice to home" (V2H).

10. Deploy the fleet. Fleet buyers are leading the way on many fronts. **Plug-In Partners is a national campaign for a large fleet buy.** Presidential candidates may endorse Incentive programs towards initial costs and warranties to reduce battery risk factors. The focus is also moving to heavier vehicles and ways to partially convert millions of internal combustion engine vehicles, especially "PSVs" -- Pickups, SUVs and Vans.

**Assumptions for Point #2 using conservative estimates for gasoline cost:**

Here's another way to think about it: At $4/gallon of gas, driving a non-hybrid car costs10-40 cents/mile (depending on your miles/gallon). With a PHEV, local travel and commuting can drop to 2-4 cents/mile.

Toyota Prius: 260 Watt-hours/electric mile at "off-peak" (overnight) electricity rate (8.8 cents/kiloWatt hour) equals a cost of 2.3 cents/mile. Multiply this by the 45 MPG of a typical Prius to get the equivalent of $1.03/gallon.

Typical Non-Hybrid SUV: 400 Watt-hours/electric-mile at the off-peak rate equals a cost of 3.5 cents/mile. Multiply this by the less efficient SUV's average of 18 miles/gallon to get an even better $0.63/gallon. (SUVs get low mileage, so they improve even more!)

100+MPG of gasoline: On roads and highways, our cars use gasoline plus about $0.01/mile of electricity=80+MPG equivalent.

**The California Cars Initiative is a non-profit startup of entrepreneurs, engineers, environmentalists and consumers that combines technology development and advocacy. Ou goal: SUCCESSFUL COMMERCIALIZATION OF PHEVS ASAP. More at www.calcars.org.**