

# The Plug-In Campaign: What's Next?

**September 17, 2011**

**Green Drive Expo  
Richmond, CA**

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The California Cars Initiative  
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**For updated PDF of presentations:  
[www.calcars.org/downloads](http://www.calcars.org/downloads)**



***What can we buy now & soon?  
How can we get cars 50% OFF  
FOSSIL FUELS — in 20 years?***



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[www.calcars.org](http://www.calcars.org)

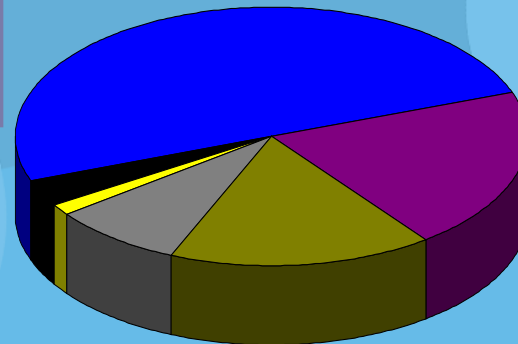
## 3 ways electricity is better than oil



**1. ECONOMICS: CHEAPER --**  
electric miles at a quarter the cost



**2. CLIMATE: CLEANER --**  
50% less CO<sub>2</sub>, even on our half-coal national power grid



**3. ENERGY SECURITY: DOMESTIC --**  
Only 1.5% of electricity comes from oil in US

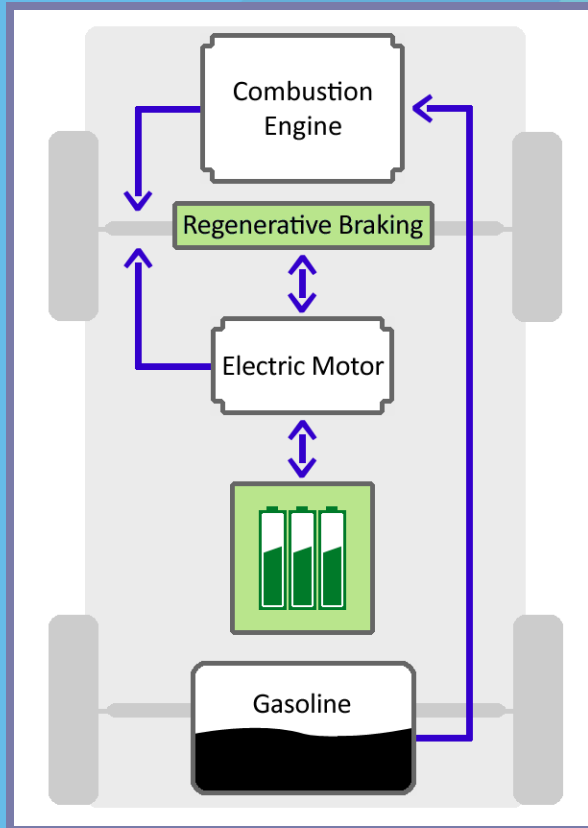


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## Hybrids are evolving into plug-in hybrids



**SMALLER gasoline engine**  
compatible w/low-carbon fuels  
(accepts more regeneration)

**SAME/LARGER electric motor**

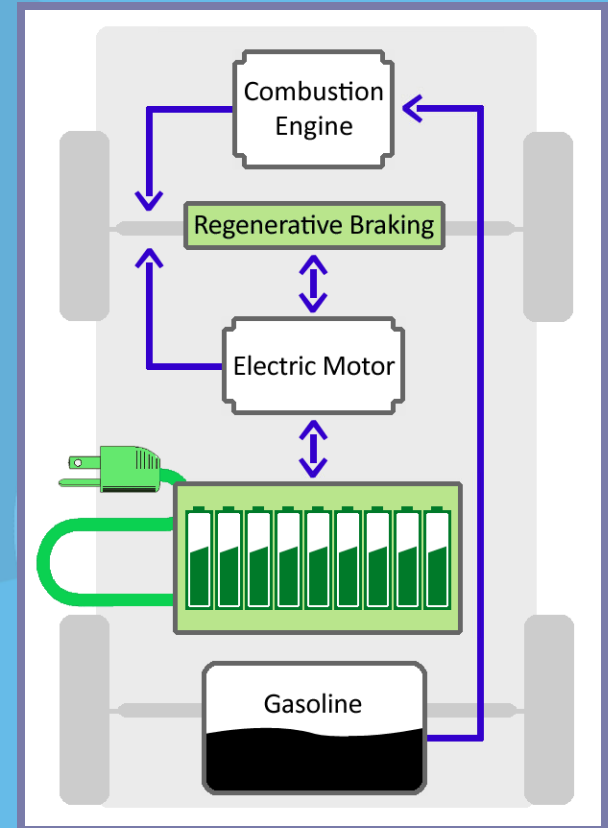
**MUCH LARGER battery**

**NEW: Plug into the grid**

(same or smaller gas tank)

(SERIES PHEV "EREV" simpler:  
only motor powers wheels)

**EV: just the battery & motor!**



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Modified from an EDTA diagram concept

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**"A coalition between the tree-huggers, the do-gooders, the sod-busters, the cheap hawks, and the evangelicals." – former CIA Director James Woolsey**

## Nonprofit startup CalCars' helps spark a campaign

Technology  
(demos)

Advocacy  
(buyers)



2004



2006



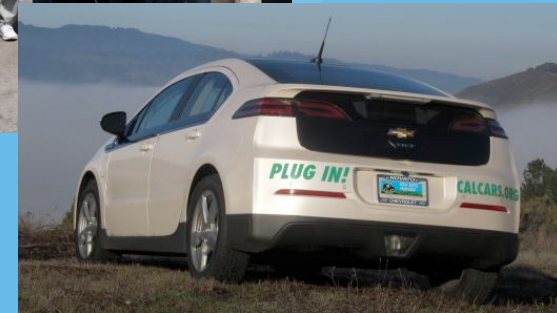
2007



2008



2010



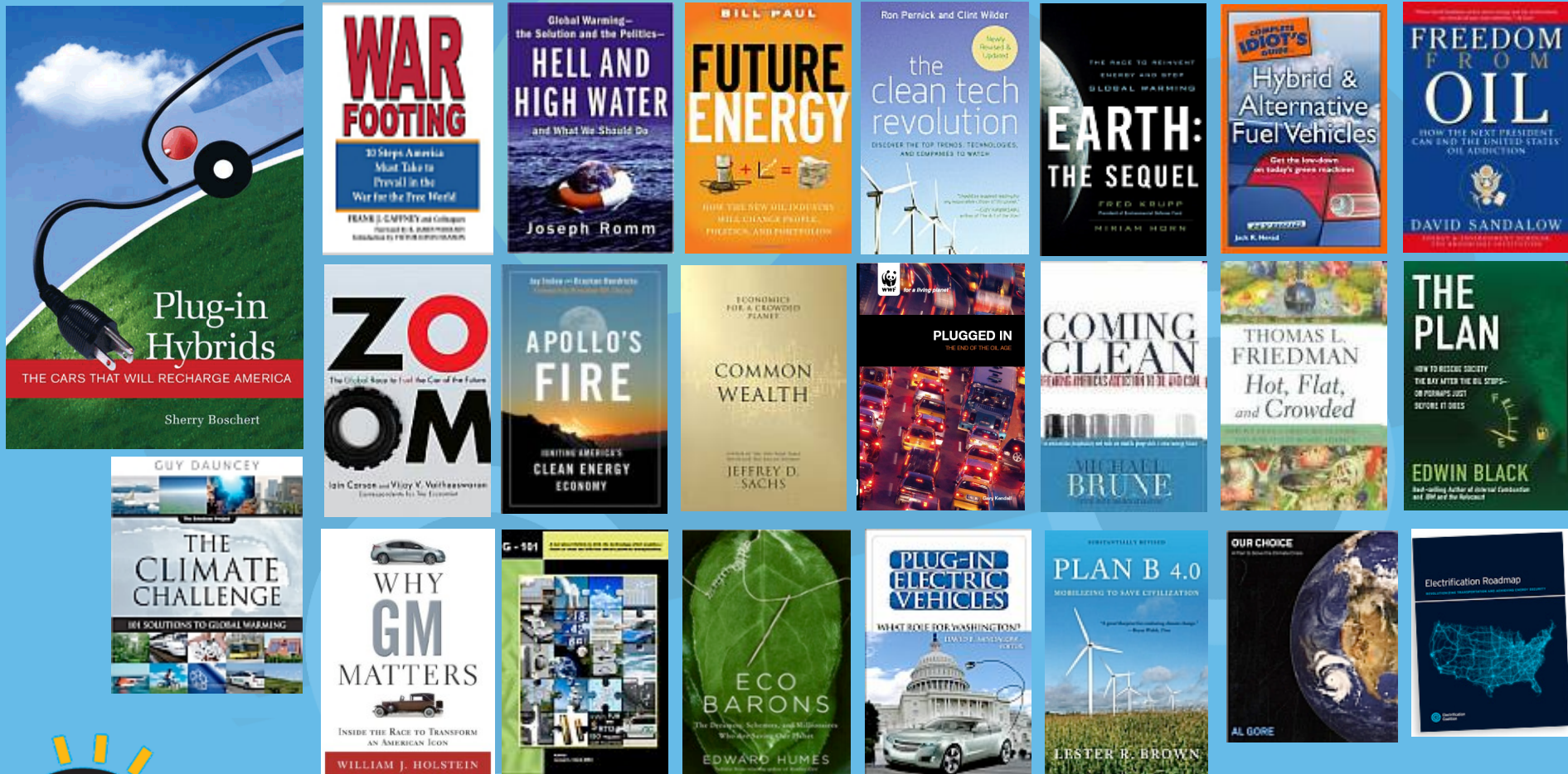
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Link for info and to order at [CalCars.org](http://CalCars.org) home page

## 2005-2009: 27+ books highlight PHEVs



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# Media avalanche & kudos 2004–2009

- The plug-in hybrid approach, as being pursued by CalCars, seems to be our best bet for controlling vehicle CO2 emissions in the near-term. *Dr. James Hansen*
- We should help America's automobile industry to convert quickly to plug-in hybrids that can run on the renewable electricity that will be available. *Al Gore*
- The drumbeat of electrical transportation is accelerating like nothing I've ever seen. *Andy Grove*
- Plug in hybrids are a really big deal... practical, profitable and urgently needed. *John Doerr*
- The most notable technological advancement of the past 50 years, *David Cole/CAR*
- GM's most important model in decades -- and possibly the key to its survival. *Wall Street Journal*
- The first step toward a new kind of car for everyone. *Mark Phelan/Detroit Free Press*
- The Volt has joined baseball and apple pie as an unassailable, non-partisan symbol of American can-do and know-how....the most important political accessory since the flag lapel pin. *Wired*
- “Felix Kramer has made plug-in electric cars not only his passion but an imminent American reality.” *Thomas Friedman, Hot, Flat and Crowded*
- Possibly the most sought-after technological innovation since Captain Kirk first flipped open his communicator is the plug-in hybrid. *Matthew Wald, NY Times*



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**Wikipedia: "modern production plug-in vehicles"**

**Every carmaker on board (below as of 2010)**

**Trackers: PlugInAmerica.org, PlugInCars.com, Wikipedia**



**if & when?**



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## Victory! How often do our dreams come true?



***Professor Andy Frank's 40-year quest fulfilled;***

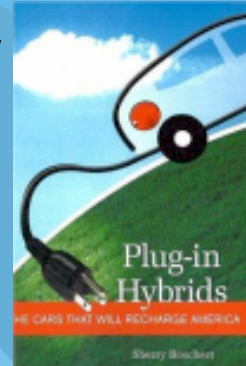
***CalCars & plug-in advocates' 10-year campaign brings plug-ins to dealers (much more to do to ensure success)***



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***Read the story of the campaign's early years***



***World's 1<sup>st</sup> household with Volt & Leaf (briefly, a three-plug-in fleet)***





## Real world 100+MPG: 9 months with the Chevy Volt

- **Ron Gremban**: 4,729 miles@151MPG (mostly Bay Area)
- **Andy Frank**: 8,900 miles@107 MPG (mostly Sacramento area)
- **Felix Kramer**: 11,269 miles@62MPG (ten R/T to Tahoe, dozens of 80+ miles in Bay Area; plus 4,300 local miles with Leaf)
- **Long distances**: 225 miles to & from Tahoe (full battery, 8,000 ft. elevation): 35.8MPG up, 50.8MPG down, av. 43MPG  
First plug-in to drive it w/out refueling!



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## Highway-speed cars on sale/for lease now & soon

### **EV: All-electric (BEFORE federal and state tax credits)**

- Nissan Leaf \$35K
- Smart ED \$600/month lease
- Mitsubishi "i" (was MiEV) \$29K
- Tesla Roadster; successor is S \$60K+
- Ford Focus, Honda FIT, Toyota RAV4, Mini E, Coda, others next year

### **PHEV/EREV: Plug-in hybrid (BEFORE federal tax credit)**

- Chevy Volt \$40K
- Fisker Karma \$100K; Nina cheaper
- Toyota Prius Plug-In Hybrid: see Sat at Green Drive Expo



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## Success isn't guaranteed: buy/plug ideas & cars!

### **ACT: Help organize and promote (besides CalCars.org)**

- PlugInAmerica.org (national)
- ElectricAuto.org chapters: E. Bay/N. Bay/Golden Gate/Silicon Valley
- ElectricDrive.org (EDTA trade association)
- SierraClub.org/ev (national & chapters)
- ProjectGetReady.org & your local & utility programs

### **Get informed and communicate to others**

- NEWS: • EVWorld.com • PlugInCars.com • AutoblogGreen.com  
• GreenCarCongress.com • Autoobserver.com/green (Edmunds)
- USERS: • GM-Volt.com • MyNissanLeaf.net
- BIG PICTURE: • ClimateProgress.org • Grist.org • Treehugger.com



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## Next: “Big Fix” to retrofit millions of vehicles



*Pioneer proponents for a new global industry: HEVT's Ali Emadi, CalCars' Felix Kramer, Intel's Andy Grove, Efficient Drivetrains' Andy Frank, in 2008*

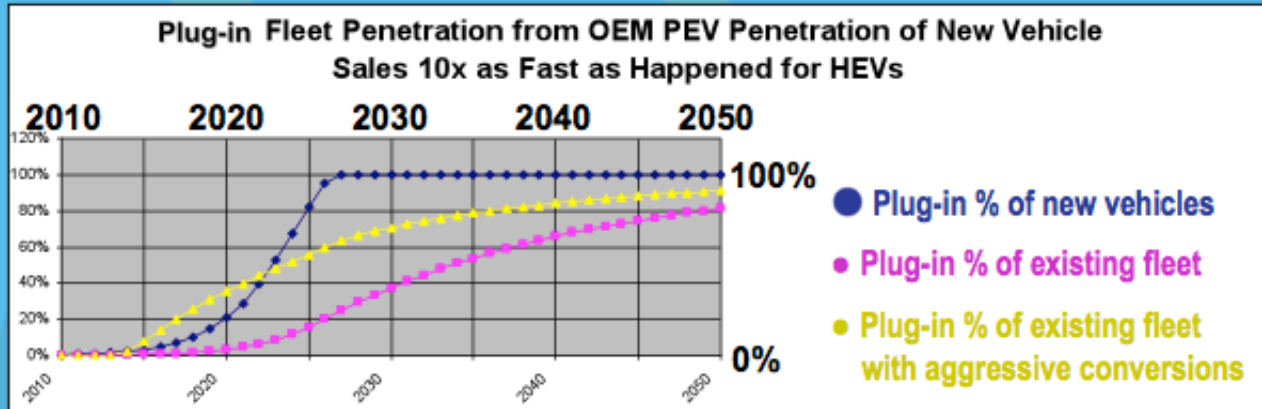


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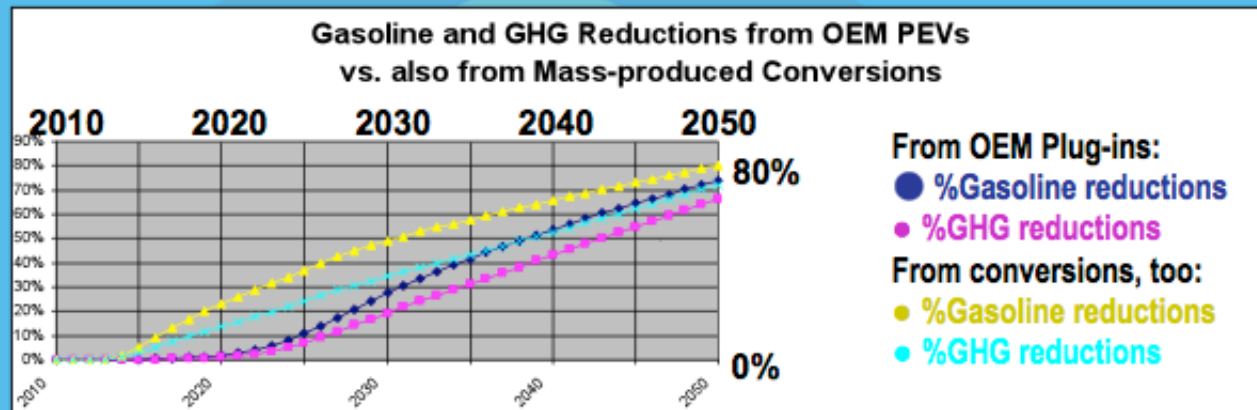
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# Go beyond new plug-ins to get 50% off oil by 2030



Virtually all near- and mid-term oil consumption benefits come from retrofits for a 10-20 years.



Maximum long-term CO<sub>2</sub> reduction requires a combination of new vehicles, retrofits, and sustainable biofuels.



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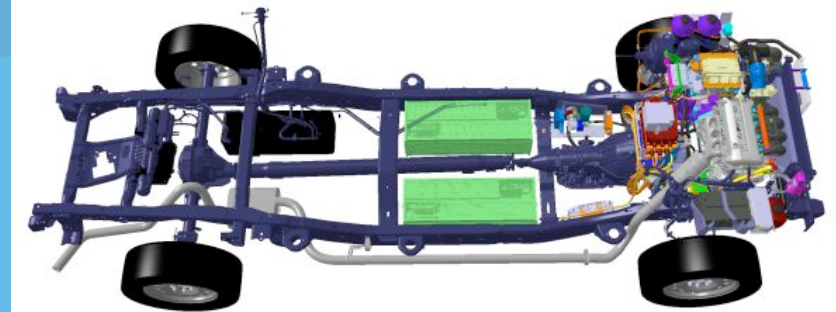


## ALTe, LLC: a hopeful sign in Michigan

Engineering and mass-producing Series PHEV and EV complete powertrain conversion kits and platforms



F-150 pickup and ParkingSpot van at launch of new 185,000 sq.ft. Michigan facility



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- Staffed by auto industry and Tesla alumni
- Modular approach for vehicles from 2,000 lb to 16,000 lb
- 80% - 200% better fuel economy
- \$25,000 drivetrain replacement
- Customers/contracts/Manheim nationwide installer network
- Aim: 90,000+/year powertrains annual volume
- Closing equity investments



## What will it take to start the Big Fix?

### **End Business As Usual (BAU): go beyond 1M by 2015:**

- Equalize tax incentives
- Drive Star — “built” environment /prize/ local jobs
- Carbon price NOT enough incentive!
- Europe: \$7/gallon; China \$5

### **Smartest/best uses for resources/technologies/facilities**

- Hydrocarbons “sequestered”
- Drill Now! for geothermal
- The petroleum industry isn't going away; what will it take to influence their spending on R&D, investments, contributions?



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## MORE from CalCars.org home page



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THE CALIFORNIA CARS INITIATIVE — 100+ MPG Hybrids



**About CalCars** | POPULAR: [Convert Big Gas-Guzzlers to Plug In \(24 slides\)](#) | [Endorse "Big Fix" Campaign](#)

**Plug-In Hybrids**

**Take Action**

**News and Events**

### Plug-In Hybrids Use Cheaper, Cleaner, Domestic Energy

**Quick Takes**

- [All about Gas-Guzzler Conversions](#)
- [Carmakers' Plans for New PHEVs](#)

**09/12/11:** [Wondering What CalCars Has Been Up To?](#)

**05/17/11:** [Plug-In Roundup #3: Policy Issues / ICE Conversions](#)

**05/17/11:** [Plug-In Roundup #2: Media & Marketing News](#)

**05/17/11:** [Plug-In Roundup #1: Vehicle News](#)

**04/07/11:** [ALTe Partners with Industry Giant Manheim: First Step to Create Gas-Guzzler Retrofit Industry](#)

**04/06/11:** [Volt/Leaf Sales; Sierra's GoElectric; Obama on Energy; SIRUSXM; PHEV Bus](#)

**03/11/11:** [Woolsey Backs Gas-Guzzler Retrofits; Cheaper Volt?; Ron's Bittersweet Volt Moment](#)

**02/25/11:** [Giant PHEV & EV News Roundup](#)

**02/24/11:** [New CalCars Video + Media on Volt & Leaf & Celebration](#)

**1/28/11:** [Lucky Family First to Get a Volt & a Leaf](#)



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