



**JOIN TODAY** | **SEARCH**  **GO**

Subscribe to EV World Premium for just \$29.00 annually.

news  
 story



[SUBSCRIBER LOGIN](#) | [FORUMS](#) | [NEWS](#) | [ARTICLES](#) | [BLOG](#) | [NEWSLETTER](#)

[HOME](#) | [INDUSTRY](#) | [PREMIUM FEATURE ARTICLE](#)

## Meet the World's First 150 MPG Plug-In Prius

By [EV World](#)

From-the-field interview with Energy CS principals Greg Hanssen and Peter Nortman on their 150 mpg plug-in Toyota Prius



**March 07, 2005**

Okay... so as to not confuse you any more than you might already be, Energy CS' plug-in Toyota Prius gets between 120-180 miles per gallon equivalent for the first 50-60 miles of the day. After that, it drops back to the standard Prius 50 mpg average.

So, how's that work, you ask?

Simple. For the first 50-60 miles, it runs mainly on electricity stored in its brand new, 9kWh Valence U-Charge Lithium-ion Saphion battery pack. The gasoline engine runs so seldom that you would effectively get the equivalent of up to 120 mpg under normal driving conditions using a combination of EV mode driving and electrically assisted gasoline engine driving. With less aggressive driving (and thus lighter use of the gasoline engine) gasoline consumption can be as low as 180mpg.

Of course, you can drive as far as you like in the normal Prius gasoline-electric hybrid mode, but then you drop back to the still very respectable 50 mpg.

In practical terms, since most people drive only about 25-40 miles a day, you'd use more electric power than the normal Prius. In effect, your energy would come from the power grid and you'd pay for your "fuel" through your electric power bill instead of to the oil company.

Starting to get the picture? See why environmentalists, electric utilities and all those national security wonks in Washington, D.C. are so excited about the plug-in hybrid

PHOTO CAPTION: Based on the pioneering work of UC Davis professor Andy Frank, the marketing efforts of Felix Kramer and the engineering efforts of EPRI, grid-chargeable hybrids like the one developed by Energy CS are beginning to get serious atten from both the media and policy makers, if not car companies. TI stock 2004 Toyota Prius is powered by 9kW lithium ion batterie: developed by Valence. Greg Hanssen is on the left. Peter Nortr is standing on the right. Kneeling is Valence engineering representative, Mark Kohler. This car is now on its way to Mona for EVS 21.

### PODCASTING

[Download 3.68MB MP3 File](#)

[RSS](#) [EVWorld Radio](#)

### Tools

[Print Document](#)

[Email Document](#)

[Cookie Bypass](#)

[Bookmark Page](#)

concept? It's an idea whose time has come, though, as you might expect, carmakers are less than enthusiastic about it, arguing that its impractical and too expensive.

What can't be argued is that the technology now exists to make it happen and there are small research programs cropping up all over America. I happen to luck out while in Los Angeles in the end of February and got to see one of those projects just before the car was shipped to Europe for EVS 21, this one created by a small engineering shop located in the foothills, in the heart of Monrovia. That firm is Energy CS, headed by my old friend Greg Hanssen and his partner Peter Nortman. They've taken a stock 2004 Toyota Prius gasoline-electric hybrid, removed the 1.3kWh NiMH battery pack, installed a 9kWh Valence U-Charge pack powered by the Austin, Texas company's Saphion lithium-ion battery chemistry.

Editor's note: We recorded an extensive interview with Valence executives the week before travelling to LA. That interview will air in the near future.

In this "from-the-field" interview, Greg Hanssen and his partner Peter Nortman explain the origin of the project, whose spiritual 'godfather' is Felix Kramer with CalCars. Hanssen, who is, to my knowledge at least, the only person to drive a GM EV1 electric car across America *twice* (recharging at my house on one occasion), does most of the talking in this MP3 audio 'podcast'. Hanssen had just driven the car back from the California EPA office where it had been undergoing preliminary testing most of the day. Within hours, the Energy CS crew would be preparing the car for a cross-country trip to Jacksonville, Florida and a 'date' with a freighter bound for France.

To listen to the interview, use the Flash-based MP3 player just below the picture or download the file to your computer hard drive for later playback on your favorite MP3 device.

You'll be hearing much more about plug-in hybrids the higher the price of gasoline goes, so stay plugged into EV World.

### Reader Comments

- 08/Mar/2005 **David Navas:** Nicely done folks. "...
- 08/Mar/2005 **Kevin Kelly:** Where do I get in line for one of these babys."...
- 08/Mar/2005 **zephanschroeder:** When can I order one? What will the price be? FYI...
- 08/Mar/2005 **Felix Kramer:** Want a PRIUS+ someday? We've started a Newslett...
- 08/Mar/2005 **Charles Freeman:** I also drive a plug-in hybrid. I converted a Ford...
- 08/Mar/2005 **Ron Lloyd:** Cool. Okay, what if I layer a nanotech solar PV s...
- 08/Mar/2005 **Marshall T:** Neato! What's the price for those Li-ion battery ...
- 08/Mar/2005 **Bill Yerkes:** This is great and just think, fueling this car wit...
- 08/Mar/2005 **Rock nj:** Great! This is the first step towards a 500 mpg c...
- 08/Mar/2005 **Rock nj:** Solar nano paint technology isn't really all that ...
- 08/Mar/2005 **Jens Schacherl:** Valence battery pricing: <http://www.visforvoltage...>



### Related Articles

- [So You Want a Diesel-Hybrid, Do You?](#)  
10 Feb 2005
- [Dual of the Hybrids](#)  
30 Jan 2005
- [Ford's PZEV Diesel Quest](#)  
15 Jan 2005
- [2005: Year of the Hybrid](#)  
31 Dec 2004
- [Towards Cleaner Engines in Europe](#)  
08 Oct 2004
- [Hydrogen: Hype Meets Reality](#)  
23 Jul 2004
- [The 60 MPG Lawsuits](#)  
10 Jul 2004
- [Time to Leapfrog Hybrids](#)  
24 Apr 2004
- [FedEx Sets Hybrid Truck Pace](#)  
07 Jun 2003
- [Hybrid Buses In Brazil](#)  
31 May 2003

## EVWORLD BOOKS

In cooperation with Amazon.Com



[Boiling Point: How Politicians, Big Oil and Coal, Journalists and Activists Are Fueling the Climate Crisis--And What We Can Do to Avert Disaster](#)  
Ross Gelbspan  
New \$14.96  
Used \$5.50



[Hydrogen: Hot Stuff Cool Science - Journey to a World of Hydrogen Energy and Fuel Cells at the Wasserstoff Farm](#)  
Rex A. Ewing  
New \$24.95  
Used \$16.90



[Sustainable Homes : 26 Designs that Respect the Earth](#)  
James Grayson Trulove  
New \$19.77  
Used \$16.92



[Fuel Cell Systems Explained](#)  
James Larminie  
New \$121.07  
Used \$54.55

- 08/Mar/2005 **John Boyd:** If Bush and his oil/hydrogen cronies see this the...
- 08/Mar/2005 **Ron Gremban:** Re: Marshall T's Comments (as CalCars technical le...
- 09/Mar/2005 **Ron Lloyd:** I agree that nanotech paint isn't far off, but it'...
- 09/Mar/2005 **John Boyd:** Bell Labs and mPhase are working on nanotechnology...
- 09/Mar/2005 **Johann Joseph:** Speaking of nano solar technology...about a month ...
- 09/Mar/2005 **Jerry Olson:** I wonder what the mpg would have been driving down...
- 09/Mar/2005 **Jens Schacherl:** Jerry Olson: 1) going downhill in an (PH)EV can gi...
- 09/Mar/2005 **John Boyd:** It's nice but I still want something with no gas ...
- 10/Mar/2005 **Brian Gilder:** Has anyone ever thought of pure electric and using...
- 10/Mar/2005 **C Arnoldus:** re Brian Gilder's comment: Yes, I've thought of a ...
- 10/Mar/2005 **Felix Kramer:** DaimlerChrysler's PHEV Sprinter/Battery Swaps Joh...
- 10/Mar/2005 **Ron Gremban:** FYI: the cost of a Valence pack (17 U1s) in my com...
- 10/Mar/2005 **John Boyd:** If future battery technology produces a fast char...
- 10/Mar/2005 **R Sun:** Great job guys!! Hopefully Toyota will catch on...
- 10/Mar/2005 **Praveen M:** QUICK THOUGHT- Great Job... I still have a quick t...
- 10/Mar/2005 **Ron Fischer:** Battery swapping idea goes back at least as far as...
- 10/Mar/2005 **Steve Erlsten:** This will have truly mass appeal. As a selling p...
- 11/Mar/2005 **M R:** http://www.greencarcongress.com/2005/03/maxwel...
- 11/Mar/2005 **Arnold Larsen:** MR -- Are you referring to a Tribrid? Coupling ...
- 12/Mar/2005 **M R:** Yes Arnold
- You can call it **Tribrid** or...
- 12/Mar/2005 **M R:** IEA (International Energy Agency) which advices th...
- 13/Mar/2005 **Craig Moore:** Swapping batteries is a good idea to keep electric...
- 14/Mar/2005 **John Boyd:** As a 30 year electronics inventor, I can testify ...
- 14/Mar/2005 **R Men:** FOR THE FUTURE OF LITHIUM ION BATTERIES GO TO WWW....
- 14/Mar/2005 **M R:** The whole objective of Hybrid mechanism is to extr...
- 14/Mar/2005 **M R:** In **5 years time**, we must be having a Plugin...
- 15/Mar/2005 **Mike Breza:** Since your essentially on electric for the first ...

### Join the Discussion

[Click to Comment](#)

Report Abuses to [EV World's Editor](#)



The Complete Idiot's Guide to  
Solar Power for Your Home  
Dan Ramsey  
New \$13.57  
Used \$12.74

[Suggest Book](#)

[Home](#) | [About](#) | [Advertising](#) | [Privacy](#) | [Submissions](#) | [FAQ](#)

Copyright 1998-2005, EVWorld.com, Inc. All rights reserved.

Non-subscriber content on EV World may be freely distributed with the only stipulation being that EV World be credited and a link is provided back to the site. Some portions of this website require a \$29.00US [annual subscription](#).

EVWorld.com, Inc. - P.O. Box 461132 - Papillion, Nebraska 68046 USA. Direct all correspondence to [editor@evworld.com](mailto:editor@evworld.com)