

Transcript (some typos corrected) of webchat between Tony Posawatz, Chevy Volt Vehicle Line Director and co-chair of the Electric Drive Transportation Association, and Felix Kramer, Founder of The California Cars Initiative, on Oct 16, 2009 as a leadin to the breakout session, "The Consumer: Who, When and Why?" at The Business of Plugging In 2009 Conference

[http://www.pev2009.com/program/index.asp - w\\_bs1\\_3](http://www.pev2009.com/program/index.asp - w_bs1_3) . The webchat can be found at <http://chevroletvoltage.com/index.php/Blog/live-chat-with-felix-kramer-of-calcars-and-tony-posawatz.html>

Tony Posawatz, Chevy Volt and Felix Kramer, California Cars Initiative (10/16/2009)

Tony Posawatz: Thanks for joining us today. Felix Kramer of California Cars Initiative is here with us. Apologies for the rescheduling. The Volt program is always exciting. Let's get to some of your questions.

Felix Kramer: I'm glad to be here. This is a very exciting time as we approach the time when we'll see plug-in cars from automakers on the road.

Phil Colley: Sorry folks, we're having a few technical difficulties with pushing the questions through - apologies. We'll have this fixed soon.

[ Aldo ] Hi Mr. Posawatz. I will be buying a Volt and wanted to know if an extension cord could be used to increase the reach for recharging, or if we are going to be limited to the length of the cord that comes with the car. Thanks!|

Tony Posawatz: The EVSE or charge cord will be about 25 feet and designed to all relevant codes. We do not recommend extension cords but rather that when you have your home inspection, you reposition your outlet/charging station appropriately.

[ Sue ] Currently there seem to be a small group of fans and haters who have been having an active

conversation about the Volt online...but they don't represent mainstreet. Where will the transitional entry point occur for 'ordinary' consumers who get excited about the Volt's technology and future vision for how we drive get communicated...and who are these people who will be better equipped at conveying the message in a more mainstream missionary manner? And won't that be the true tipping point of consumers "getting it"?

Felix Kramer: We're still having some technical problems. I think the Volt is designed for broad acceptance, not small market niches.

[ Reg from Canada ] Do you expect to see the volt rolled out to Canada, specifically Vancouver which just signed deals to test the mitusbishi imiev and the nissan leaf? Also, what can we expect to be the price point for the car in CDN dollars?

Felix Kramer: Ontario is going to have a \$10,000 credit for new plug-in vehicles, which should help (even more than the \$7,500 in U.S.)

Tony Posawatz: Yes, the Volt is coming to Canada - first for the Winter Olympics in Vancouver. Pricing is still a ways off. Perhaps the Canadian government can provide some support as the US government has.

[ efrenalpizar ] How is the

development drive going on the volt ?  
Tony Posawatz: We've just returned from a six-state tour this week, logging close to 1,200 miles on each prototype Volt. The vehicles show great promise for the future. Much work is still to be done to make them perfect for next year's launch. The Volts did conquer the hills of West Virginia and other interesting obstacles.

[ Frank ] hey guys. thanks so much for doing this. can you tell us a little about the focus of your panel "The Consumer: Who, When and Why?". thanks.

Felix Kramer: The panel will talk about how we get to this point, what we consumers expect, how to ensure successful commercialization, and where to go next--in CalCars' case, to also raise the opportunities for gas-guzzler conversions. SEMA is involved (the after-market industry trade association), so it should be interesting!

Tony Posawatz: We have talked about vehicle and infrastructure readiness. Now we need to talk about customer readiness. Our diverse panel will touch on everything from education to expectations.

[ Bill Moore ] Tony... now that the 8 Volts are back from the trip to OH, PA and WV, what's your analysis on their performance overall?

Tony Posawatz: Bill, I kind of answered this one but we can go into it more when you are here for BPI next week.

Felix Kramer: Everybody, Bill is editor of the invaluable EVWorld.com -- take a look (and subscribe!)

[ Marc Geller ] Very pleased to see the

progress being reported. When do you foresee placing cars with some "pioneers" or "influencers" for short-term trials?

Tony Posawatz: During the 2010 calendar year in preparation for our end of year production launch, we intend to conduct events with prospective customers. The plan is being worked as we speak. Stay tuned.

[ Chris ] How will the batteries be affected by real cold? I.e. -30F, or is that still to be tested? We have about 5-10 days a year that hit those digits.

Tony Posawatz: When the Volt is plugged in, we use grid energy to condition the battery - to keep it at a nice, toasty temperature. If the Volt is in a cold environment and not plugged in, we still have an engine on board that can create a lot of heat.

[ Bill Moore ] Felix... how do you feel about the focus by GM and others on bringing PHEVs to market?| 3:5

Felix Kramer: I'm delighted at all the progress, including the concept vehicles that will show up at the Tokyo Auto Show next week. We expect more concept cars will turn into production-intent vehicles and deadlines will advance as competition and market opportunities increase.

[ Don ] When will a regular customer be able to purchase a Volt?

Tony Posawatz: Start of production is still scheduled for November 2010. The early Volts will be in selected markets and available for purchase. We have not yet been specific about those markets.

[ Carl ] Hello, thanks for the chat! Why does the Volt need such a large engine

to recharge the batteries? Does GM have a smaller "generator" lined up for future applications, like Lotus is working on? Thanks again

Tony Posawatz: Thanks. We like doing these chats. The first-generation Volt uses a high-volume, low-cost engine, which generates 53 kilowatts of power. It is conceivable that this engine could power a bigger vehicle. In the future, we anticipate purpose-built engines for extended-range electric vehicles, such as smaller turbo-charged engines, Stirling-cycle engines, gas turbines... even small-displacement motorcycle engines.

Phil Colley: Some questions won't push through, so I'll post them for the questioner.

From Steve: Tony, Felix great job on promoting the EV industry. Can you explain to me why we[...] see companies in the news who have publicly announced plans to give away free ev charging stations to cities and municipalities that we do not see the oems getting involved with them to build the infrastructure? If the Chicken and egg excuse is being used daily and there are solutions to get the ev charging station infrastructure built I would think this would be a huge rallying cry for the industry. I need to be able to plug in everywhere when I take delivery of my volt.

Felix Kramer: There's not going to be a free lunch on this: someone has to pay for charging stations. Of course, for the Volt and any PHEV/EREV, they're icing on the cake--the first users will buy the car because they have a place to charge it at home or work. Look at

<http://www.projectgetready.org> to see all the regional efforts to support the

rollout of both PHEVs and EVs

[ Del Gallagher ] Bob Lutz has mentioned "...up to 40 miles" many times as the range of the Volt. But, what will be the realistic range when power equipment such as headlights, defroster or air-conditioner, sound system, etc. are turned on?

Tony Posawatz: The 40-mile range is on an EPA city/highway cycle. As with all vehicles, there is variation around real-world performance. For example, high air conditioning use will reduce the amount of EV range a customer gets. The Volt will offer remote cabin conditioning using grid energy vs. battery energy to set the temperature.

Phil Colley: From Steven Lough: Dear Mr: Posawatz As President of our local E[...]AA chapter here in Seattle And a former GMC Dealer for 45 years... We have been ON TOP of developments with the Chevy Volt, and the Nissan LEAF. My question is this.. As the prior owner of 5 EV's and most of them RED, Is the Chevy VOLT going to be offered in something Close to a Ferrari RED. And say "Hello" to our good friend Felix Kramer Respectfully: Steve Lough, President Seattle EV Association

Tony Posawatz: The Volt will be produced at our Detroit-Hamtramck assembly plant, which has an ultra modern paint shop and has been home to many Cadillac models. The Volt will have multiple premium paint lines. I see red in your future.

[ Sue ] Many hybrid owners frankly would prefer an all-electric car. Once the Volt is being produced, do you expect early-adopter hybrid owners to switch over/buy Volts?

Felix Kramer: I'm looking for many

hybrid owners actually to consider converting their vehicles to give them a small all-electric range (prices for conversions are coming down as you can see [www.calcars.org/howtoget.html](http://www.calcars.org/howtoget.html) ). And some companies are getting there on safety and compliance with state and federal safety and warranty regulations.

Tony Posawatz: I recently put significant miles on our prototype Volt. Once you have driven electrically with instantaneous torque with no transmission shifts, seamless start-stops and a library-quiet cabin, you won't want to drive any other way.

[ Remy Tennant ] At what in point in time does GM anticipate "crossing the chasm" from selling primarily to early adopters to selling to the early majority?

Tony Posawatz: We've said Volt production will go from thousands in the first year to tens of thousands in the second year. But it really depends how many people feel comfortable owning an EREV. Low gas prices and a weak economy cause us some concern, and we don't control those.

Felix Kramer: I'll answer that more broadly. All the automakers are going to have an opportunity to meet broad demand. Key to this, We hesitate to make predictions about how popular new plug-in cars will be because it's so hard to forecast the impact of fluctuating oil prices and the evolving public mood. We think we're seeing a recognition that it's the end of "Business as Usual" for our country and our world -- and that we have to do whatever it takes to get off fossil fuels ASAP.

[ JeffB ] Felix...do you plan to

purchase a Chevy Volt?

Felix Kramer: I'd love to put my 2004 retrofit Prius up for auction as a historic "conversion #8) and get a new PHEV. I hope I'll get the opportunity early! I'm looking forward to seeing the latest version next week (and people in the Detroit area can come on public day Wednesday, Public Day).

[ William Figueroa ] Hello Mr. Posawatz, I've been reading many mixed reviews concerning the Volt. I personally love the idea and am big fan. My questions to you are, like any other rechargeable battery they have life cycles. I'm sure the longevity of the Volt's battery are long but what exactly is the total number of recharge cycles the battery can go through before it eventually has them replaced? More importantly if such an event should ever occur where the batteries have to be replaced, can they?

Tony Posawatz: The Volt battery is designed for 10 years and 150,000 miles in the car with a life for the battery after its automotive use. As such, we are managing both calendar life and cycle life and anticipate the Volt to last well past 5,000 cycles.

[ Statik from GM-Volt.com ] For Felix Kramer, can you talk a little about the effects CARB is having on pricing/acceptance of vehicles like the Volt. What (if any) is the logic/benefit behind forcing prohibitively high warranties? It seems likely the consumer will be overpaying for this coverage at point of sale. Is there any changes in the regulations you would like to see out of CARB before vehicles like the Volt are introduced?

Felix Kramer: For new vehicles, I don't think it's likely at this point to

get lower requirements for the first vehicles -- that might have been possible a year or two ago. All the companies are working to meet the 150,000 mile/10 year requirement from CARB, followed by over a dozen other states.

[ Jerry ] Any talks with utilities regarding battery leasing and a second life for the batteries at the end of their use in Volt. perhaps for off peak energy storage in businesses or homes?

Tony Posawatz: Yes.

Felix Kramer: Someone will get into the business of building "battery farms" but it may be someone other than utilities -- they can go in the basement of large office buildings, get charged at night at low rates and used to displace expensive daytime power. But we're at least 5 or more years away from that opportunity.

[ LeoK3 ] Tony, as GM prepares to launch the first generation VOLT, do you see enough flexibility in the battery pack assembly that it could be refitted, in say 10 years, with the latest 2020 battery technology allowing those vehicles to stay on the road longer?

Tony Posawatz: We are currently studying compatibility with future generation batteries and are working on Generation 2 technologies. It is our hope to allow future technologies to keep our first-gen Volts on the road for a long time.

Felix Kramer: That's what's nice about vehicles being more electric-- diagnostics (in some cases remotely via "connected" telemetric vehicles) and upgrades will become much easier.

[ Kevin ] Question 1. The Volt has an e85 flex fuel system. Can it take regular gas?

Tony Posawatz: Yes. It will capable of running on gasoline or E85 or any combination of the two. No other EREV can do that. In fact, we ran E85 in the engine during this week's development drive.

Phil Colley: [CaptJackSparrow] To either of you... Is the battery warranty seperate from the cars warranty

Tony Posawatz: The Volt battery warranty will be a minimum of eight years, which is longer than most other component warranties and much longer than battery electric vehicle warranties will be.

Felix Kramer: Most people don't know that hybrids, for example, have 4 or 5 different warranties; the battery is covered under the emissions warranty, while the car warranty for most vehicles is much shorter. PHEVs will have similar regulatory requirements.

[ Naturenut99 ] Is there an opportunity for a reg person to start up charging stations?

Felix Kramer: In theory yes, but working out arrangements with utilities may get more complicated than a small operator could handle We do think residential and commercial parking lots will make their facilities more attractive by offering charging, and in NYC condo buildings are already looking at adding plugs in their basement lots.

[ Jim I ] On gm-volt.com, we have wondered about how the ICE will operate during charge sustaining mode. Will the engine run at just a few "optimal" speeds, or will it be tied to

the throttle, like an ordinary vehicle?  
Tony Posawatz: In charge sustaining or range extender mode, the Volt will not follow the throttle position. During our development trip this week, our team was working on refining this operation. The challenge is to select the right operating points (RPMs) that are 1.) efficient, 2.) pleasing to the driver, and 3.) meet regulatory requirements. We are about ready to expose people to this experience.  
Tony Posawatz: We have time for a couple more...

Felix Kramer: These kinds of questions and discussions often show up at discussion areas like [www.gm-volt.com](http://www.gm-volt.com) and other websites--see list at [www.calcars.org/partners.html](http://www.calcars.org/partners.html)

[ Guest ] Do you see the more exotic companies like Fisker or Tesla as direct competition with their discussion of mid-range priced cars in the future? Or is the Volt more an answer to the foreign offerings?

Felix Kramer: People think there has to be one winner, but there is room for many large and small companies. Today's auto industry has over 80 different major options for vehicle buyers.

Tony Posawatz: We at GM are rooting for the electrification of the automobile, and that means everybody. We want the customer to have many choices and there is plenty of room in the market for all first movers to play. Our solution (the Volt) is designed to grow the market and make electrically driven vehicles a mainstream choice in the future.

[ Del Gallagher ] "As with all vehicles, there is variation around real-world performance. For example, high air conditioning use will reduce the amount of EV range a customer gets." Can you be more specific and supply some numbers. If I turn the A/C to high, will I get 30, 32, or 35 miles before the ICE has to kick in?

Felix Kramer: For the broader question on vehicle efficiencies and what consumers can expect: Right now we have three relevant information sources on MPG: carmakers' fleet MPG (CAFE), vehicle sticker displays (EPA), and real-time/cumulative displays (in car). It's important that all three in some way convey fuels used, greenhouse gas emissions, and costs/mile. Each is a major challenge to get right, and will require cooperation between industry, government, and consumers.4:3

Tony Posawatz: These effects are exactly what we are testing right now and we intend to provide customers with relevant information to help them get the most out of their Volt.

Tony Posawatz: Thanks for all the great questions everyone today. Sorry for the technical difficulties at the beginning. Looking forward to The Business of Plugging In conference next week. For more info check out <http://pev2009.com>.4:3

Felix Kramer: Thanks to everyone for being advocates. Keep on spreading the word about the need to get cars that run on cleaner, cheaper, domestic electricity into the market as soon as possible.