

# Leo Cirino Steps Down as Club President

## Leadership Transition

Club founder, Leo Cirino, has stepped down as club president. Leo was widely recognized for his tireless and effective advocacy for clean transportation and received multiple awards from area organizations. Leo will be the first club President Emeritus and was presented with a plaque during the club news conference of April 21. The new club president is Bruce Becker. □



Bruce Becker presenting a plaque to Leo Cirino

Leo, who is a forward-thinker when it comes to clean transportation and vehicle electrification, founded the club in 2009, the first EV club in Connecticut. During his tenure, the club worked on numerous projects to showcase EVs, educate the public, and develop charging facilities. It could be why Westport has the highest EVs per capita of any town in the state.

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## **EV Ownership Grows 35% in CT**

### **35% Increase in 2017**

The number of plug-in vehicles registered in CT has grown by 35.1% in a comparison of 2 data points one year apart.

The Westport Electric Car Club received an updated vehicle ownership file from the CT Department of Motor Vehicles which was obtained via a Freedom of Information Act request. This enables us to make comparisons with a similar file acquired 1 year ago. These files contain no personal data, just make, model, model year, and city.

This translates to 6264 vehicles this year compared to 4636 the prior year. The term EV includes both battery electric vehicles (BEV) and plug-in hybrid vehicles (PHEV). EVs represent .28% of all vehicles registered in the state this year, up from .20% last year. EV sales have been growing by double digit percentage increases for several years now, but when looking at a number like .28% of all vehicles, the context is that these recently manufactured EVs are in a file

that contains all of the existing fleet in the state.

Keep in mind that these data points are static snapshots of vehicles registered. It is not the same as new car sales. It would include the purchase of used vehicles and it would not include vehicles that were sold or had a lease expiry. Broadly speaking, since they aren't the same numbers, this 35% increase compares with a 26% increase in the sales of new EVs nationally in 2017 vs. 2016. As this post is being written the March 2018 EV sales figures are being released. Inside EVs is reporting a record month, with EV sales up 43% compared to March 2017.

## Makes

The most widely represented EV make in CT remains Tesla with 1617 vehicles, followed by Chevrolet with 1504 and Toyota with 1191.

## Cities

With respect to cities, Greenwich remains the city with the most EVs at 511. Westport is third with 266, though it has the highest per capita incidence of EVs at 1%, roughly 3.5 times the incidence of the state as a whole.

One of the most frequent questions we got when we did our analysis last year was how many fuel-cell vehicles were in the file. The answer this year is the same as last year: NONE!

There were several new models represented this year, including the Honda Clarity PHEV, Chrysler Pacifica PHEV, and the Mini-Cooper PHEV.

## Increases

The makes with the largest percentage increases among those with a major EV presence (arbitrarily defined as at least 300 units) are Chevrolet at 52.4%, Toyota at 51.9%, Nissan at 33.3%, and Tesla at 21.4%. The Chevy increase was driven by the introduction of the BEV Bolt. Toyota introduced the Prius Prime, the new version of its plug-in Prius which is selling much better than the previous model. Nissan is transitioning to the new Leaf.

The elephant in the room is, of course, the Tesla Model 3. Given that Tesla is the most widely represented EV brand in the state and given the fact that there is a backlog of unfilled reservations, if Tesla manages to wrangle its manufacturing bottleneck, it could change the complexion of the numbers. There were only 4 Model 3s included in this file. During recent testimony in Hartford, Tesla reported having over 3000 Model 3 reservations in the state. In Westport, Tesla represents 51% of all plug-ins and it accounts for 8.3% of all of the Teslas registered in the state. That projects out to something like 250-300 Model 3 reservations in Westport. In other words, if this is accurate, it represents a number roughly equal to all of the plug-ins currently registered in the town.

We won't know for a while about the Model 3, but we will be following up with additional information from our analysis of the data and an update to our interactive dashboard. Stay tuned!

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# The EV Outlook: Contradictory or Inexorable

## The New Peak Oil

There was a documentary film called "Collapse," which premiered at the Toronto International Film Festival in 2009 about a self-styled investigative journalist named Michael Ruppert who claims to have predicted the 2008 financial crisis. In this film, he purports to forecast a looming disaster caused by an insufficient supply of fossil fuels to support a growing world economy. "The mortal blow in human industrialized civilization will happen when oil prices spike and nobody can afford to buy that oil and everything will just shut down," is how he characterized it.

Had that come to pass, it would certainly would have created some urgency to find alternatives. But that was then. Less than a decade later, we find ourselves awash in fracked oil and natural gas, and in the midst of a slow-burning (pun intended) climate crisis, where the political leadership at the Federal level in our own country, the largest country in terms of cumulative greenhouse gas emissions and the second largest in terms of current emissions, is more resistant to doing something about it than almost all other countries.

While Ruppert was wrong about "peak oil", he made another comment that was more prescient with respect to the larger political dynamic: "It's kind of sad because we as a species have become so disconnected from the Earth. We don't have any real contact with the Earth. We don't have any sense of its functions, its feeling, its seasons, its timings."

If you would like more of a freak-out, albeit in a more

soberly detailed, journalistic style, try reading [The Sixth Extinction](#) by Elizabeth Kolbert, who discusses (among other things) species adaptation in past cycles of climatic change and how this time is different. (It's happening a lot faster, folks, too fast for evolution to keep up.)

## Peak Oil and EVs

Where this fits with EVs, of course, is that transportation accounts for 40% of petroleum use globally. The meaning of the phrase "peak oil" has changed from meaning the scarcity of supply to the turning point in consumption level. The projected EV adoption rate is a big factor in determining when that occurs.

According to a survey of forecasts published by [Bloomberg, the earliest this is likely to happen is shortly before 2030, as forecasted by Bank of America. The intersection point in terms of the cost curves of EVs and conventional vehicles is forecasted to be 2025. The point at which EV sales surpass ICE sales is forecasted to be 2038. Others, such as major petroleum exporters Saudi Arabia and Russia, forecast this peak oil point to be further out, more like 2050.](#)

## The Landscape

One may be forgiven for feeling a sense of cognitive dissonance when looking at the landscape for EVs in the USA.

- We have not reached the tipping point with consumers purchasing plug-in vehicles.
- There is a Federal tax credit, flaws and all.
- Tax credit notwithstanding, the political environment at the Federal level is largely unfavorable to clean energy. Auto manufacturers have had success in persuading the current administration to back away from phase two of the Obama CAFÉ requirements.

- There is a mixed landscape across the states with some offering incentives and others that add a surcharge to EV registrations.
- Many dealers are reluctant to sell EVs. (This is a link to a 2015 [NY Times article](#) about this subject. This is a link to a more recent, candid, and thoughtful [article](#) by an employee at a Chevy dealership about the challenges of selling EVs, even when working for a dealer who is supportive.)
- EVs remain under-marketed.
- A recently reported [study conducted by KPMG](#) of 1000 auto industry executives reported negative sentiment for near/medium term EV prospects. To quote from Green Car Reports, “76% of executives see internal combustion engine vehicles as still more important than electric drivetrains for a very long time.” They felt the biggest hurdle is a lack of charging station infrastructure. (Strangely, they were more bullish on fuel-cell vehicles to break out, even though there is even less hydrogen infrastructure.)

And yet there have been numerous ambitious announcements by major legacy auto manufacturers.

- GM has announced the development of a modular EV platform that will be the basis for 20 or more vehicles. This flexible platform is intended to lower the cost substantially. They anticipate selling [1MM EVs per year](#) (globally) by 2026 (and “bury Tesla”).
- Ford announced an \$11 billion investment in 40 plug-in vehicles by 2022.
- Volvo intends to phase out gasoline engines by 2024.
- Fiat/Chrysler announced the [future of automobiles is electric](#). This by CEO Sergio Marchionne, the same person who several years ago asked customers not to buy his Fiat 500e BEV.
- Volkswagen, in the wake of “dieselgate,” has announced a



pivot to EVs and, as part of the settlement for the diesel emissions fraud, a \$2 billion investment in charging infrastructure.

At least part of the reason for these plans is what is happening outside of the USA.

- The EV poster child is Norway, where 52% of new car sales are now EVs, and their goal is to phase out diesel and gasoline by 2025. They are using a panoply of carrots and sticks, including generous [subsidies](#), to drive this result which they hope can be phased out over the next 10 years. And the price of gasoline is 15.86 krone per liter (Jan 2018), or about \$7.65 per gallon (compared to \$2.53 in the USA, per AAA).
- Paris plans to [ban diesel](#) by 2025 and phase out gasoline vehicles by 2030. Britain and France plan to ban the sale of gasoline and diesel vehicles country-wide by 2040.
- China has ordered the discontinuation of [553 vehicle models](#) that are the most polluting.
- Japan now has more [charging stations](#) than gasoline stations.

Plug-in vehicle models are becoming more numerous. Electric propulsion is beginning to be incorporated into larger vehicles. The energy density in batteries is steadily improving. Prices are coming down to the point where, eventually, incentives won't matter. The EVs on the market now have mostly been well-received, are fun to drive, and will only get better and more diverse.

While there are different forecasts about when EV sales will overtake those of internal combustion vehicles and when peak oil consumption will occur, nobody thinks it won't happen. The Georgetown Climate Center held a webinar on February 13 regarding planning for charging infrastructure for an EV corridor in the Northeast. Just to excerpt one sentence with



respect to combating carbon emissions, “Without electrification of the transportation sector, there is no clear path to meeting our goals.”

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## **2017: The Vehicles**

### **EV Landscape**

This is the first of several posts that will discuss the EV landscape from the perspective of the directions in vehicle production, the Federal tax credit, the latest with respect to efforts on the part of the State of Connecticut, and some observations about the global outlook.

Various pundits followed by this page had forecasted plug-in sales crossing the 200,000-unit threshold in 2017. That didn't happen, but it was oh, so close. According to Inside EVs, the final number for 2017 is 199,826, an increase of 26% over 2016. (This number excludes fuel-cell vehicles, which, though small, would have added another couple of thousand to the total). This follows a 37% increase in 2016 over 2015. December 2017 had the highest EV sales of any month on record with 26,107 units, up 5% over December 2016.

While this general sales trend is healthy and has withstood a prolonged period of moderate or low gasoline prices, overall sales volume remains in niche territory given the total car/light-duty truck sales of 17.2 million (of which 63% were of the truck/SUV persuasion).

There were 42 distinct plug-in models registering sales in 2017, quite a jump from 27 models just 2 years ago. The diversity of EVs continues to improve and includes vehicles with longer range and of larger size.

Of all of the new model introductions, the most notable are the first mid-price battery electric vehicles (BEV) with a single-charge range of over 200 miles: the compact crossover Chevrolet Bolt and the Tesla Model 3 sedan. The 200-mile threshold was thought to be a game-changer. So how are we doing?

The Bolt rollout was gradual and full national distribution did not occur until fall 2017. It quickly rose to become the largest selling plug-in for GM with 3,227 units sold in December, a respectable number by EV standards. The Bolt sales figure for December is the second highest for a GM plug-in, bested only by the 3,691 Volts sold in December 2016.

Tesla, after reportedly booking over 200,000 reservations in the USA alone with refundable deposits, has only produced 1772 Model 3s since the first one rolled off the line in July. There was some encouraging news in that the December number increased to 1060 following November at only 345. Nonetheless, prospective Model 3 buyers must remain patient. If Tesla can wrangle their manufacturing bottleneck, and if some reservation holders don't bolt for a Bolt, the Model 3 at present appears to be the only plug-in that can approach a reasonable fraction of the monthly sales volume of a top-selling gasoline car (currently the Honda Civic at roughly 24,000 units per month. The top-selling vehicle is the Ford F series pickup at about 73,000 units per month.)

In the case of Chevrolet, the rise of the Bolt has correlated with a decline in Volt sales. Chevy sold 1937 Volts in December, a 48% decline from December 2016. This could be due to an easier to explain user proposition for a BEV relative to a plug-in hybrid (PHEV). Both offer industry-leading electric

range in their class (Bolt – 238 EV miles, Volt – 53 EV miles + 370 gas miles). Both have been well-received. But the PHEV world is complicated to explain. The category has tremendous variation across vehicles from the perspective of engineering, performance, and range. And many PHEV drivers make efforts to maximize their mileage using the battery.

## **PHEV/BEV**

That said, the PHEV powertrain isn't going away anytime soon. In 2017, the market was roughly split with PHEVs having a 53% market share (based on unit sales). The manufacturers are looking to introduce electric versions of their top selling SUVs and trucks. The only way to get there today is the PHEV format.

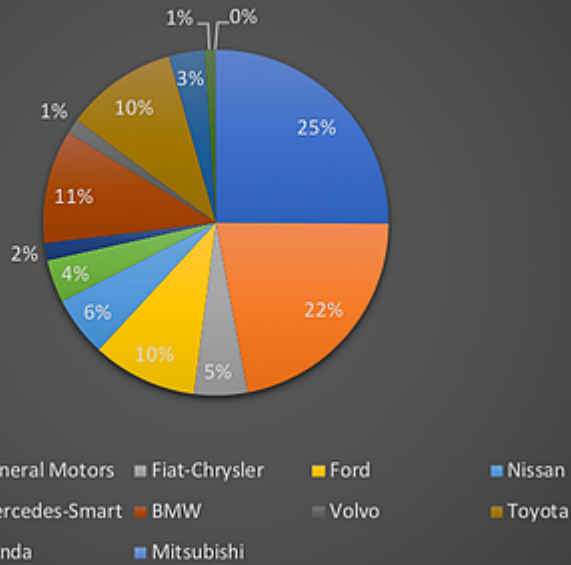
There were 2 introductions last year of mid-priced vehicles in these larger categories, both PHEVs. The Chrysler Pacifica (minivan – 33-miles electric) arrived along with the Mitsubishi Outlander (compact SUV – 22-miles electric). These join pricier options available from BMW, Volvo, and Mercedes. All of these have modest sales to this point (defined as under 1000 month).

Toyota, the company that pioneered the hybrid category with the conventional Prius parallel hybrid has finally produced a vehicle that is making a sales impact. This is the second generation plug-in Prius (PHEV), the Prius Prime. The electric range is 25 miles and the base MSRP is under \$30,000 before incentives. Sales of this model reached 2420 in December, higher than the Volt.

Another major manufacturer that has heretofore been mostly on the sidelines, Honda, introduced both a BEV and PHEV version of its clean-energy nameplate Clarity.

Below are the market shares in the US for each manufacturer as reported by Inside EVs.

## 2017 Share of EV Market by Manufacturer



The most obvious reason for a major change to the landscape is a ramped up Tesla Model 3. All of the major manufacturers have made announcements about dramatically scaling up the number and variety of EV models they produce. Within the next five years, it seems likely that between 100 and 200 new models will be available. These are the vehicles that we have seen specifically announced for 2018:

- Jaguar I-Pace – BEV, a first for Jaguar.
- Nissan Leaf – Not new, exactly, but a major redo is promised.
- Audi e-tron Quattro – First Audi plug-in SUV.
- Faraday Future FF-91 – The first car from a new company, headquartered in Silicon Valley, backed by Chinese company LeEco Electronics.

This is a good reference of currently available vehicles from [Plugincars.com](http://Plugincars.com)

2018 is the year that some manufacturers will bump against the ceiling of the Federal tax credit. More on that in the next post.

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# Interactive Dashboard, Part Deux: Westport Has Highest Incidence of EVs of all CT Cities

## Interactive EV Dashboard

We have added a page to the CT EV interactive dashboard so that it now shows plug-in vehicles per capita by city and plug-ins as a percentage of all vehicles registered in each city.

Keep in mind that the denominator in per capita is the entire population and not just those old enough to drive.

Westport has the highest incidence in each case, though the low incidence, in general, illustrates the progress yet to be made.

This page has the same interactive features as the other pages and there is a slicer by fuel type in order to isolate the data view to either Electrics or PHEVs (plug-in hybrid).

Again, all data are based on vehicles registered as of February 2017. It is a static view and not to be confused with sales.

Here is the [dash link](#).

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# The State of the State of EVs in Connecticut

## EV Ownership Deep Dive in CT

Sales of EVs nationally have continued on an upward slope in 2017, up 44% year over year for the first 5 months relative to 2016. And the availability of models has come quite a ways since the 1898 Riker pictured in the photo above. 32 different plug-in models had sales, compared with 26 in May of 2016. New models that hit the market in late 2016 and early 2017 include the Chevrolet Bolt, a revamped Toyota Prius Prime, BMW 530e, and Mercedes C350e. Of these new introductions, the Bolt is a battery electric vehicle while the others are plug-in hybrids. And, of course, we await the Tesla Model 3, deliveries of which are expected to commence sometime in the third quarter of this year.

In this blog post, the WECC takes a deeper dive into the status of EV ownership in Connecticut.

## Technical Information

The information in this post comes from the Department of Motor Vehicles and includes all plug-in vehicles registered in Connecticut as of February 2017. The data set contains no personally identifiable information, just make, model, model year, and city. There is a link to spawn the dashboard at the bottom of the post.

The list was procured by club member Bruce Becker via a

Freedom of Information Act Filing. The dashboard was built by Barry Kresch.

Please note that this is a database of registrations which is not the same thing as sales. The year is the model year of the car, not when it was purchased or registered. This affected Chevrolet in particular because GM had a short run of the 2016 model year Volt and the 2017s were on sale in CT by the spring of 2016.

There are currently 4636 plug-in vehicles registered in CT. (There are approximately 2.3 million vehicles in total registered in the state, so, yes, you can still be an early adopter!) This number includes battery electric cars as well as plugin hybrids. Going forward in this post, these are simply referred to as "electric" and "PHEV" respectively. PHEV vehicles have smaller battery packs than electrics and can run on gasoline when the battery is depleted. They are sometimes referred to as "series hybrids." PHEVs come in many different configurations in terms of how the engine works and the size of the battery pack. In other words, the saying "your mileage may vary" applies in a really big way, but you can at least bank it being high. There is one vehicle, the BMW i3 REX, which has a very small gasoline engine (about 3 gallons) which is an optional range extender intended for emergencies. For the purposes of this analysis, it is considered an electric since that is how it is intended to be used.

## **Highlights:**

- There are 30 models of electric/PHEV vehicles from 19 manufacturers registered in CT. Keep in mind that there are a number of EV models that have only been available on the West Coast as manufacturers play the zero-emission credit (ZEV) game to comply with the letter of the law for the California Air Resources Board requirements. Even some vehicles intended for a national



market get rolled out gradually across the country (the Chevrolet Volt and Bolt both being examples).

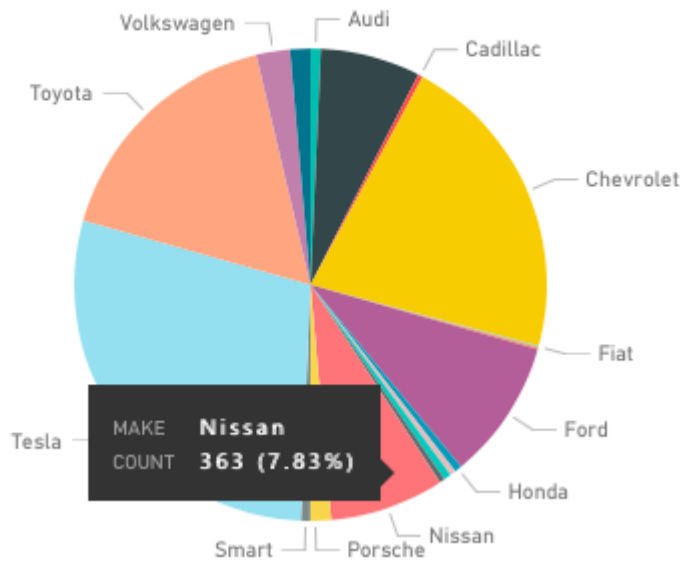
- The largest moniker in the state is Tesla, which accounts for 29% of registered plug-in vehicles (and 62% of electrics). Tesla is the leader even though the company is not permitted to have a sales showroom in CT. For the third-year running, a bill to enable Tesla to sell direct in CT did not make it through the legislature. (The legislative session ended on June 7.)
- Chevrolet is second with a 21% share. This all comes from the Volt as the Bolt was not yet available in CT at the time the data was sourced. A third Chevrolet model, the SparkEV, is not sold in CT.
- Toyota was the only other automaker above 10%. They came in at 17% with their Plug-in Prius and the newer version, Prius Prime.
- The largest individual models were the Tesla Model S (24%) and Chevrolet Volt (21%).
- The lion's share of EVs is in Fairfield County with 46%. Hartford County and New Haven County follow at 18% and 17% respectively.
- The cities leading in EV counts are Greenwich, Stamford, Westport, Fairfield, and Norwalk.
- PHEVs represent 54% of the total.

The dashboard is interactive. There are 3 pages. Pagination is at the bottom. If you click into one of the checkboxes it will filter the data on that page to that box (or boxes). If you want to check multiple checkboxes, then depress the control key while clicking. (It is a little tricky to click multiple boxes on the web dash. It sometimes needs a double click.) If you click into an element in a chart, it will cross-filter the other charts. If you hover over a pie slice or a bar, counts and/or percent share will display. See the [dashboard here](#).

The dashboard is best viewed on a desktop/laptop computer. An example of one of the charts is in the screenshot below.

We hope you find it interesting!

### Plugin Vehicle Share by Make



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## 2017 EV Road Rally

## 2017 EV Rally

Our 2017 EV Road Rally was enjoyed by all participants this past Sunday, May 7. The rally covered roughly 30 miles, beginning and ending at the Westport/Saugatuck Metro-North Train Depot with a mid-point stop at the Wilton Go Green Fair.

These were the EV models spotted in the rally:

Tesla Model S

Tesla Model X

Chevrolet Bolt

Chevrolet Volt

VW eGolf

Mercedes S550e

BMW i3

Ford C-Max Energi

Mitsubishi i-MiEV

Joining us as a sponsor was Pedego Electric Bikes.







## Videos from older rallies.

The EV Club began doing EV Road Rallies in 2013, which, at the time, was the first EV rally to have been held in Connecticut. Below are links to videos from the 2014 rally:

[Rally overview](#)

[Time-lapse video of rally route](#)

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## Tri-Town Teachers Federal Credit Union Welcomes Members From Westport Electric Car Club

## Tri-Town Teachers Credit Union

Members of the Westport Electric Car Club are now eligible to join the Tri-Town Teachers Federal Credit Union and receive the full array of banking and insurance services offered at rates generally below standard bank rates.

The National Credit Union Association has modified its regulations to allow community organizations to become members. The partnership between the TTTFCU and WECC is a particularly good fit in light of the credit union's Go Green Initiatives, which include the installation of solar panels on

the roof of their historic 1882 carriage house location at 61 Jessup Road in downtown Westport. In addition to generating clean electricity for the building, they also power two Level 2 EV charging stations which are open to the public for no charge, and which were installed courtesy of a contribution from Karl Chevrolet.

The TTTFCU also offers discounted auto loans to purchasers of plug-in vehicles.

To quote from the credit union:

“We hope to find other like-minded organizations whose members are interested in maintaining the rich historic heritage of our area and that support green initiatives to preserve the beauty and environmental health of our planet.”

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## **Preview of Volt 2.0 at Karl Chevrolet**

## **EV Club Sees Pre-Production Prototype of Gen 2 Volt at Karl Chevrolet**

The showroom at Karl Chevrolet (New Canaan, CT), featured, for a short period of time, the Gen 1 and Gen 2 Volt side by side. The latter had been trucked to town for a press event that occurred at the dealership during the afternoon of July 28 to promote the Connecticut EV purchase incentive program CHEAPR.

That evening the WECC paid a visit to the showroom to see the new Volt before the freight truck came to cart it back to Michigan.

Club members were able to look and touch, but not drive. This was a pre-production prototype and was not street-legal. Actual production begins in August. The first tranche of cars will be sent to the West Coast. Deliveries locally are expected in late October or November.



The aerodynamics of the vehicle have been further refined in the new model. There are strategically placed nips and tucks in the bodywork, including where the arrow is pointing in the photo. A small ridge has been molded along the side of the roof so the air is channeled over the back of the car rather than washed over the side.

The center stack has been considerably reworked as seen in the



photo below.

The old touch screen had that cool space-age vibe, but not the most user-friendly operation. It has been replaced with a more conventional set of climate controls in the lower section. The upper section is now an iPad size screen which will be fully integrated with Apple CarPlay and Google Android Auto.



Volt drivers quickly become practiced, even obsessive, about squeezing out every last electric mile possible. For your

squeezing pleasure is a new feature, paddles behind the left side of the steering wheel that apply regen braking. This places the drive more deeply into the regen spectrum than driving in "first" gear (EVs don't really have transmissions). This was a feature originally introduced in the Cadillac ELR.

One of the cautions about driving in "first" is that the brake lights don't go on and a driver behind a Volt could be surprised by the relatively quick deceleration. The paddles, because the drag is greater, will cause the brake lights to illuminate. One pedal driving is here, if that's your thing.



The new Volt comes with sort of a middle rear seat. A (hopefully) limber passenger will need to sit with legs splayed to accommodate the battery pack hump which is still there. It looks like the main difference is the presence of a seat belt. Also, the pass-thru is gone, replaced by 2/3, 1/3 split fold down seats.





The more heavily raked style tapers down to the rear section of the hatchback, where the configuration of the small trapezoidal window below the spoiler is no longer present.

The numbers:

Rated electric range – 53 miles, up from 38

MPG on gas – 42, up from 37. Use of regular gas versus premium in Gen 1.

Total electric + gas range is 420 miles.

0-60 – 8.3 seconds, down from 9.0

The Volt remains an innovative design, a hybrid configuration where the gasoline engine acts as a generator for the electric

drive unit, and with the greatest electric range of any plug-in hybrid. The Voltarians among us at the meeting approved.

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## **WeGreen Westport Award Given to WECC**

Westport First Selectman Jim Marpe presenting certificate to Leo Cirino, President of the WECC.

From left to right: First Selectman Jim Marpe, Barry Kresch of WECC, Leo Cirino of WECC, and Clarinda Higgins, an awardee from the Sherwood Island State Park Nature Center.

Photo credit: Dave Matlow, Westport Now

The Westport Green Task Force named the Westport Electric Car Club as one of its 2014/2015 WeGreen Westport Awardees. The club was one of 5 recipients.

The WeGreen Award is given to those individuals, businesses, or organizations who contribute to making Westport a more sustainable community. The WECC was recognized for its work with the town to develop EV charging station infrastructure (9 charging stations to date), and for staging an annual EV Road Rally promoting the benefits of EV ownership.

The ceremony took place at Wakeman Town Farm as part of the Westport GreenDay activities.

For more details and a complete list of award recipients, our friends at [Westport Now](#) provide the full story.