Federal EV Tax Credit

Federal Tax Credit

There is a Federal tax credit of up to $7500 for the purchase of a plug-in vehicle. The amount of the credit depends on the size of the battery. This tax credit originated in the Energy Improvement and Extension Act of 2008 (George W. Bush administration), though it was amended in the Recovery and Reinvestment Act (a.k.a. “Obama Stimulus Package) in 2009. 2018 could be “the year of the ceiling.”

There was some suspense regarding whether the credit would survive the 2017 GOP tax bill given an administration that is doubling down on fossil fuels. The House version of the bill eliminated it. The Senate version retained it, and in the end, it survived. (A proposal arising late in the Obama Administration to change the incentive from a credit to a point of sale rebate and raise it to $10,000 was not able to get serious consideration in this Congress.)

Though the survival of the tax credit may sound counter-intuitive given the current political climate, there is evidence that even though EVs are relatively new, they have established a presence economically. Fortune reports that 50 companies, including major auto manufacturers and Uber, sent a letter urging Congress to retain the credit. The Detroit Free Press reports data compiled by the US Energy Department saying that EV production in this country is responsible for over 215,000 jobs.

It also happens not to be without controversy among vehicle manufacturers, particularly Tesla and General Motors, which will feel its distorting effects first.

Unit Threshold

The credit has a ceiling of 200,000 units applied to a given manufacturer. Once a manufacturer sells unit number 200,000, the credit remains in place for the current and subsequent quarters (to service the pipeline). It is then halved (up to $3750) for the next 6 months, halved again (up to $1875) for another 6 months, and then it goes away entirely for that manufacturer. In other words, the players who jumped first into the deep water will become price-disadvantaged relative to the laggards.

Tesla and General Motors have sold 161,771 and 168,183 respectively through 2017. Both are certain to crack the 200,000 level during 2018 and lose the credit at some point in 2019. Tesla will probably get there first if it succeeds in ramping Model 3 deliveries. The YouTube Channel, Teslanomics (a relatively conservative forecaster) expects Tesla to get to this level in the second quarter. GM, at its current run rate of over 5,000 plug-in units per month, will not be that far behind. And if Nissan, another early entrant, has success with its new generation of the Leaf, it too, could reach this point in the relatively near term. Nissan has sold 114,808 Leafs to this point. These companies will face some big pricing decisions and pressure to maximize cost-control in order to stay competitive.

Importance of EVs to Forestall Climate Change

According to a report issued by the Union of Concerned Scientists, “Electric vehicles are central to reducing oil consumption and transportation-related emissions in the United States.” And incentives matter at this stage of the game. In the one instance where there was a real “light switch” test, the State of Georgia, which initially had generous EV

incentives in the form of a $5,000 rebate, discontinued it in 2015 and EV sales dropped by 89% in the span of two months. In California, a state that has been among the most aggressive in deploying various incentives, EVs represent 5% of new vehicle sales (as opposed to 1% nationally).

With all of the wrangling over the EV incentives, let's not forget that the fossil fuel industry continues to benefit from preferential tax treatment in the form of expensing of intangible drilling costs, domestic manufacturing deduction, depletion allowance, acceleratated amortization, and inexpensive Federal leases. This was estimated by the Wall Street Journal to be worth $4.76 billion per year. Also keep in mind that externalities, the effects of burning the stuff, drilling/fracking for it, transporting it, or accidentally spilling it are not taxed. There are Federal and State gas taxes, though the Federal tax hasn't been raised since 1993. This has kept gasoline prices in the USA lower than most of the world. The average price for a gallon of gasoline domestically is 55% lower than the worldwide average (January 2018).

With respect to the Federal tax credit, what we have may be better than nothing, but we like the Obama-era proposal to turn the tax credit into a rebate. Not everyone is able to benefit from a tax credit. And we would like to see the sales-unit cap removed.

In terms of how long incentives might be needed, according to data from the Union of Concerned Scientists, it is estimated that with continuing improvements and cost reduction in the technology, the cost curve for EVs may cross that of internal combustion vehicles by about 2025.

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

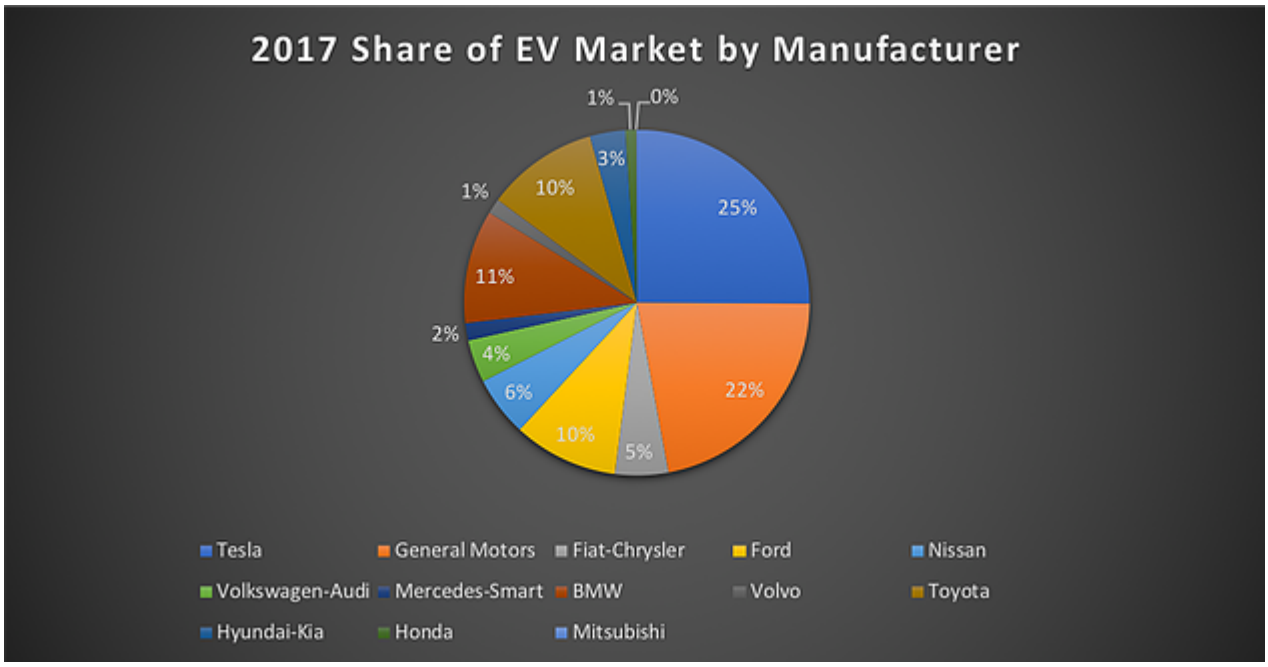
That said, the PHEV powertrain isn’t going away anytime soon. In 2017, the market was roughly split with PHEVs having a 53% market share (based on unit sales). The manufacturers are looking to introduce electric versions of their top selling SUVs and trucks. The only way to get there today is the PHEV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



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

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

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

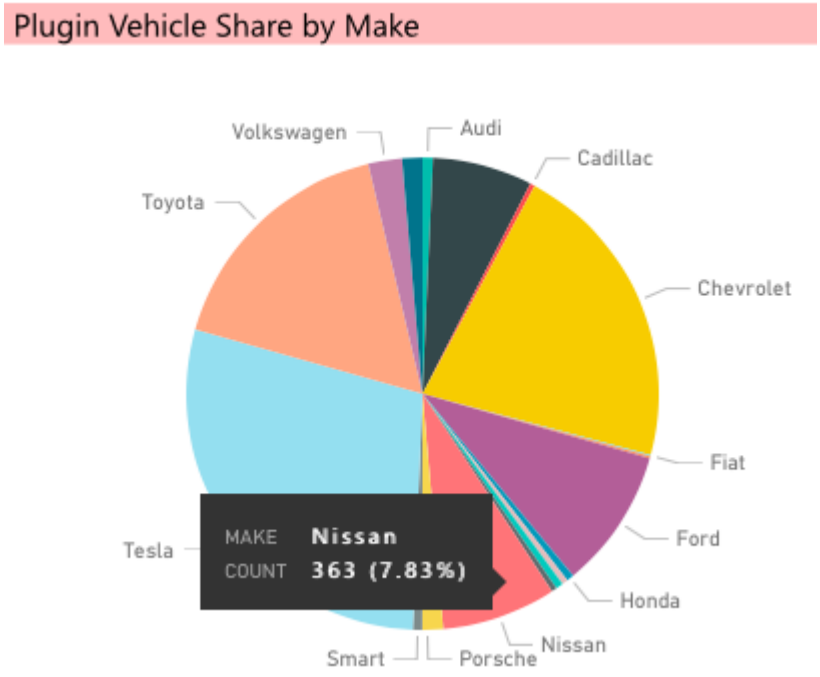
market get rolled out gradually across the country (the Chevrolet Volt and Bolt both being examples).

- 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!



Tesla Direct Sales in CT

"Tesla Bill"

The "Tesla Bill" is again before the state legislature. The official moniker is HB 7097. This bill would create a carve-out from the existing dealer laws that would permit Tesla (or other similarly situated EV makers should they come along) to sell directly to customers from factory-owned stores. CT is currently one of a handful of states that have denied this option for Tesla. The WECC blogged in some detail about last year's bill in April of 2016.

The legislation to create such a carve-out has been re-introduced (for the third year running) and at the time of

this writing is still pending. The 2017 legislative session adjourns on June 7th.

Tesla is hosting a forum to discuss the bill and its meaning for clean transportation. The Westport Electric Car Club is an invitee. It will take place at the showroom of Dragone Classic Motors, 176 Post Road West, Westport CT. The meeting begins at 6:00 PM. Panelists will be:

Will Nicholas – Tesla Government Relations Manager

Avi Kaner – Selectman, Town of Westport

Jonathan Steinberg – CT State Representative and Transportation Committee Member

A representative from the Connecticut Fund for the Environment

This meeting is open to the public and we look forward to meeting all of those interested in this topic.

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."

EVs at Lime Rock Historic

Fest

Lime Rock Gathering of the Marques

The Westport Electric Car Club is poised to participate for the second successive year at the Lime Rock Historic Fest and the Gathering of the Marques on Sunday, September 6. The club will again exhibit the 1898 Riker electric car from Dragone Classic Motors, along with EVs owned by club members.

Miggs Burroughs did a great poster for us this year. We hope to see EV owners and other interested people at Lime Rock!

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.

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.

Westport Electric Car Club at Westport Memorial Day Parade

The Westport Electric Car Club salutes our veterans

Today marked the first appearance of the WECC in the Town of Westport Memorial Day Parade.

With our armed forces at home and abroad, and EVs in the parade, we can all breathe easier.