

Managing Home Energy Load With Smart Panels

[EV Club Meeting - SPAN Smart Panel Deck](#)

Rivian Deliveries Coming to CT

Shiny new R1T on a Rainy Day.

The photo above is of Analiese Mione, a member of the EV Club CT Leadership Team and one of the earliest Rivian R1T preorder holders. She was all smiles when taking delivery of her Adventure Package R1T. The pickup is in forest green with 21" tires to maximize range, an electric tonneau cover and heated and cooled vegan seats. The photo isn't helped by the gray, rainy day, but we sure were toasty in the truck.

There were only 7 Rivians registered in CT as of our most recent DMV update on July 1st, but deliveries are increasing. Indeed, the Rivian employee who delivered the R1T and delivered a fact and fun-filled onboarding experience, mentioned that not 5 miles away a Rivian R1S was being delivered to another customer. During the Rivian earnings call this week, the company reported a 67% increase in production from second to third quarter, and affirmed guidance of 25,000 of vehicles to be produced by the end of the year. They are currently producing all 3 announced models: the R1T pickup truck, R1S SUV, and the commercial delivery van that is being manufactured for Amazon.

This adventure vehicle sports a 135 kWh battery pack and an EPA-rated range of 314 miles. Assembly is done at the Rivian plant in Normal, Illinois, which means it qualifies for the \$7,500 federal tax credit for the remainder of 2022 under the recently passed IRA. For 2023 and beyond, we have to wait to find out if they comply with the new battery rules, and the price cap of \$80K for pickups and SUVs goes into effect. It comes with J1772 (level 2) and CCS (level 3) charging connectors, along with a portable charger that can plug in to a 120 volt outlet or a 240 volt NEMA plug.

Behind the second row of seats is a gear tunnel that runs from one side of the truck to the other with doors on each end that fold down and double as seats or stepping stools for reaching above the truck. Analiese, a native plant specialist and private gardener in her retirement, plans to use it to conveniently stow her gardening tools for use at local private client homes.

Club president Barry Kresch joined Analiese for an inaugural test drive. Despite weighing a formidable 7,148 pounds, the vehicle rides on gossamer wings – smooth and silky, but responsive, quiet and very fast in all 5 driving modes. Analiese thinks she'll drive it in Conserve and All Purpose most of the time, but can switch to Sport mode with the tap of one finger should a Ferrari or Lamborghini pull up to her at a red light. □ To help spread the excitement about driving EVs and let others learn about this impressive feat of engineering, Analiese plans to participate in a number of upcoming EV showcase events.



EVolunteers Requested

EV Drivers Could Relieve the Burden of High Gas Prices in Delivering Food to the Needy

Food Rescue US is an organization that reduces food insecurity by transferring excess food from grocers and restaurants to social service agencies that feed people in need.

Using an app, volunteer drivers “rescue” food from donors. A typical rescue takes 30 minutes to an hour.

The problem in our time of burdensome inflation is that the organization has been losing volunteers due to the expenses caused by record high gas prices. EVs can affordably fill the bill.

Food Rescue US is active in Fairfield, Litchfield, and New London Counties, as well as West Hartford.

Arrangements are flexible and volunteers can make as few or as many trips as they choose. If anyone can spare some time to help the hungry, please register at this link: <https://bit.ly/EVfoodres>

Your time and good will is appreciated!

Cross Country Electric Drive

The photo at the top is from the kickoff event for a cross country electric drive. The two women attired in pink are Daphne Dixon, Executive Director of Live Green CT, who is making the drive, and Alyssa Murphy, also of Live Green, who is accompanying her. Ford has loaned a Mustang Mach-E for the trip that will conclude in Sacramento, where Dixon originally hails from, after stops in CT, NY, PA, MD, DC, VA, WV, KY, TN, AR, TX, NM, AZ, UT, and 8 cities in CA, 27 cities in total.

Range anxiety isn't completely a thing of the past, but it is much less of a concern than it used to be with longer range battery packs and more public charging stations. There will be continued improvement on the charging access front in the coming years with Infrastructure Bill funds and state incentives. Of course, there is no time like the present to make this drive with unusually high gas prices causing more people to look seriously at EVs.

Speakers, from left to right, are Marriott Dowden of United Illuminating, Jim Motavalli who is an automotive columnist and author, Barry Kresch of EV Club CT, Matt Macunas from CT Green Bank, and Charles Rothenberger of Save the Sound.

D-Day for the trip was June 6. It concludes June 27th. Clean Cities chapters will be organizing press events at each stop. You can follow their progress on the [Life on the EV Highway](#) Facebook page. As Dixon said, she is "hoping to reduce range anxiety one state at a time."

If You See Something, Say Something

EVSE Out of Order

I just hate when I see signs like the one in the above photo. I refer to the spelling, but yeah, that, too.

Maintenance of charging stations can be a mixed bag. It seems like funding is obtained to acquire chargers without budgeting for future maintenance.

The charger in the photograph is one of two installed in downtown Westport at the Tri-Town Teachers Credit Union (TTTCU). Both are down. As far as I can tell, based on app check-ins, they've been out of service for roughly two months. These level 2 chargers were paid for by Karl Chevrolet of New Canaan in return for signage, a tasteful wooden sign, and for taking the tax credit for the solar array on the TTTCU building (TTTCU is a non-profit).

We reached out to the TTTCU and they report that the company that made the chargers is out of business and they have enlisted the town to help find someone who can service them, if they are repairable. When we have more news, we will update.



The chargers at the nearby Westport library have also been down, literally. It looks like there was a close encounter of the first kind. They, too have been out for a while. (Update to this: The town is going to buy new equipment for this location; we'll update again when we have an ETA.)

This happens at way too many places. It is a contributor to “range anxiety” among prospective EV adopters. Which brings us to the call to action. Many of us use apps to locate chargers. For those of you who use Plugshare or other popular apps that allow check-ins and comments, please make an effort to call out when you see a broken charger. Even if you aren't in need of a charge, pay a visit to the ones that are local to you and do a check-in. The more data for other EV drivers, the better. And the more visibility, the better the chances of motivating the owner to make a repair.

Love Your Gas Car But Hate Emissions? Time for an EV Conversion

By Analiese Mione

But I love my car. I have heard that refrain so many times when speaking to everyday people about driving electric. Now you can keep the car you love and nix the emissions and costly maintenance with an ICE to EV conversion.

ICE to EV Conversions



Appearing right to left are Jonathan Untied, co-founder, President and Chief Software Engineer; co-founder, Lead Electrical Engineer Dennis Manning, and co-founder, Lead Mechanical Engineer Joe Monasky.

This is neither a simple nor inexpensive operation, at least not yet. A visit to [Inductive Autoworks](#) in Tolland, CT to attend a VIP tour of their new EV conversion facility provided a wide eyed, in depth look at what's involved. Dive into the video below for a quick overview and read more below about how Inductive Autoworks is bringing EV technology into the

mainstream.

Appearing right to left in the video below are Jonathan Untied, co-founder, President and Chief Software Engineer; co-founder, Lead Electrical Engineer Dennis Manning, and co-founder, Lead Mechanical Engineer Joe Monasky.

Strip Out the Engine

Step 1 is to remove the gas engine, gas tank and clutch, if it has one. Inductive Autoworks' triumvirate of founding engineers said this is the easy part and their shop does it fairly quickly.

Put in a Motor, Battery and other EV Conversion Components



Electric motor and controller/inverter on cart



Inductive Autoworks Exploded Electric Vehicle display



Niro EV Battery Pack at Inductive Autoworks

Step 2, better yet phase 2, is to add all the EV components and connect them. EV conversions are custom engineered, take

time and cost more than you'd think. Think of all the parts of an EV that don't exist in an ICE vehicle. All these need to be added including an electric motor, battery to charge the motor, on board charger, charging port, and battery management system. Learn more about batteries and other EV conversion components, and how to get them talking to one another, in the photos above and videos below.

Want to take a deeper dive into all the critical EV parts and how the Inductive Autoworks team collaborates to design, create and install them so you can drive your favorite car as an EV? Watch the beginning of the video below from fellow EV Club of CT member Paul Braren who attended their pm open house. Watch the whole video to visit each display station including the CNC and converted EV.

But for the classic car lover in particular, conversions are THE solution to keeping the car running in an environmentally friendly way. For the ROI types among us, factor into your spreadsheet the cost savings from not maintaining a combustion engine (who loves ordering rare and expensive parts from Germany?), switching to electric vs gas (50%+savings), and the priceless improvement in performance. We do want to see your analysis! For now, there is no word on whether CHEAPR incentives will apply to conversions.

Building an EV Conversion Brain Trust

Wondering about car insurance for a conversion? We are too, so more on that coming soon, but rest assured Inductive has registered and insured converted vehicles like the Mazda RX-8 below. Each time Inductive does a custom conversion for a particular ICE make and model, like the Mazda RX-8, the design and fabrication specs gets stored in a module they can reuse to convert another vehicle at a much lower cost.



Mazda RX-8 Custom EV Conversion by Inductive Autoworks

Custom Machined Parts

Custom parts are designed on a computer and fabricated in house on the CNC (Computer Numerical Control) machine, thereby ensuring accuracy and consistency while ruling out human inefficiency and error. The next time they have to machine the same part, they call up the design and reuse it at marginal expense to the customer.



The CNC machine at Inductive Autoworks used to design and machine parts for custom EV conversions.



Inductive Autoworks created a custom adapter (prototype shown) to allow them to mount an electric motor to an OEM transfer case.

Watch the video below to learn about their prototyping, testing at the test bench, get a closeup of the Mazda RX-8 conversion and test Leaf used to evaluate how they can swap out spent batteries for new ones. The tricky part is getting the car to accept the new part, and that's a software problem. Good thing they have a software engineer on the team.

Driving the Evolution to EVs

The team is also working towards offering kit conversions for DIYers, but this is an evolution. If you're looking to get a new battery for your spent 2012 Nissan Leaf for example, reach out because battery replacements are part of the evolving EV ecosystem they're building. And yes, old batteries will be

used for stationary storage.

Interested in an EV conversion or other EV services? Reach out to Inductive Autoworks at inquiry@inductiveauto.com or +1 860-222-0915 and let them know the EV Club of CT sent you.

Driving Electric Is Now a Moral, Fiscal and Climate Imperative

Post by Analiese Paik and Barry Kresch

EVs Are Essential to Mitigating the Climate Crisis

We're in a climate crisis and each of us should be taking action, regardless of state and federal policy. Driving electric has become a no brainer now that new models are out with longer-range batteries in styles and sizes that fit varying consumer needs. The Rivian R1T pictured above is a luxury adventure pickup with an optional camp kitchen with an induction cooktop that tucks away in a gear tunnel.

If Congress passes the [Clean Energy for America](#) bill, or folds it into other legislation, EV buyers could enjoy up to \$12,500 in tax incentives/rebates on qualified vehicles until fully 50% of the cars on the road are electric. Currently the full \$7,500 tax credit is still available to all-electric car (BEV) buyers as long as they aren't buying a GM or Tesla vehicle (they met their 200,000 vehicle quota). Connecticut also provides a cash rebate for certain EVs, both new and used, but

the parameters are always changing ([read more here](#)).

Create Zero Tailpipe Emissions

A battery electric vehicle is a zero-emissions vehicle. If we are to mitigate climate change, it is imperative to electrify transportation which currently accounts for 38% of statewide greenhouse gas emissions in the form of carbon dioxide and methane. The state has set a goal for itself of 500,000 registered EVs by 2030. We are less than 3% of the way there. Zooming out, the bigger transportation picture includes mass transit, active transport, and medium/heavy duty vehicles.

Every year, we see rising temperatures, as evidenced by heat waves, more severe hurricanes, drought, and wildfires. This is climate change made manifest. We can't afford to be complacent. **The time for rapidly transitioning to a zero emissions transportation system is now.**

Connecticut's Air Quality Earns Straight Fs for Ozone, Despite Improvements, Finds 2020 'State of the Air' Report

American Lung Association's annual air quality report finds nearly half of Americans breathing unhealthy air, Fairfield County has the highest ozone readings in the eastern U.S.



HARTFORD, CT | April 21, 2020

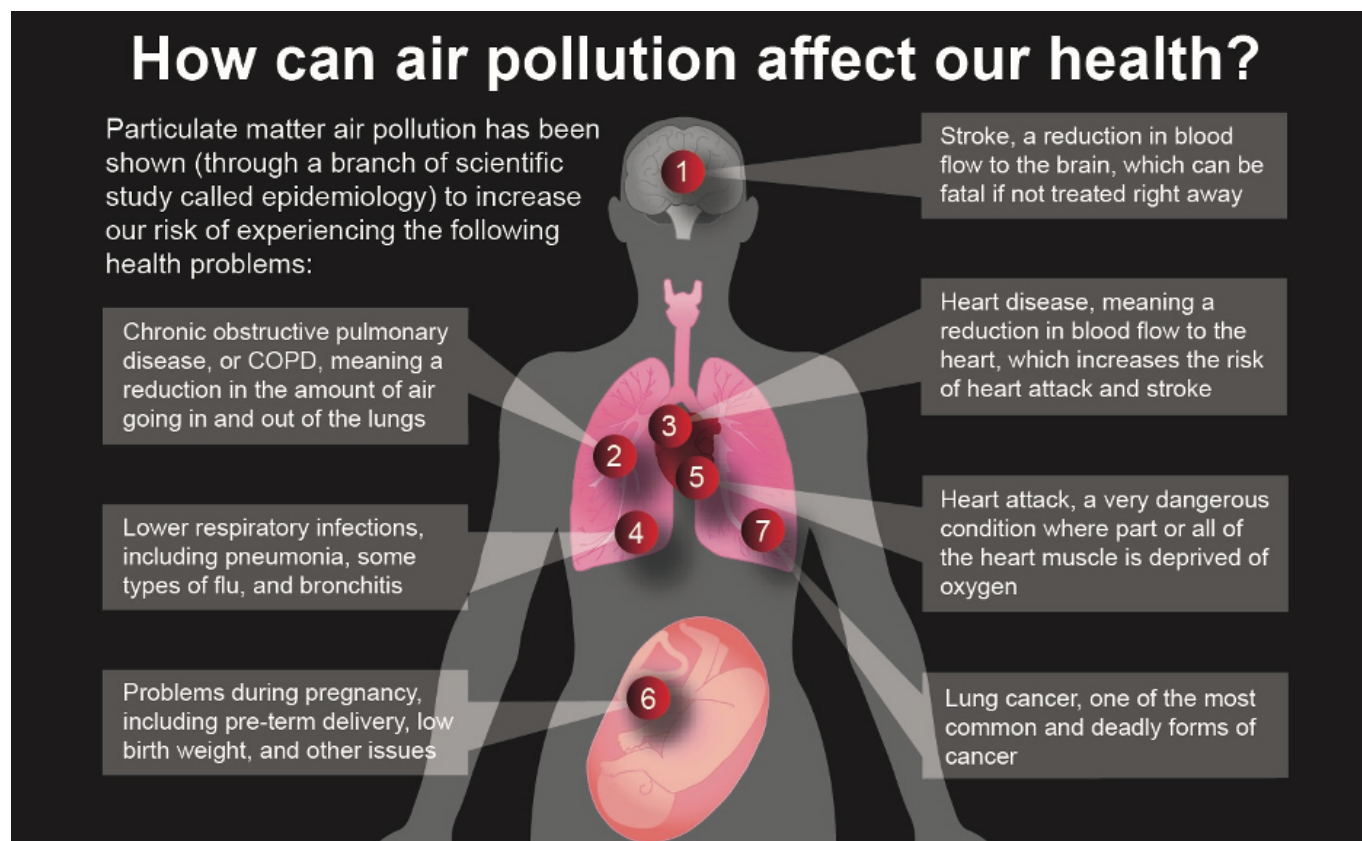
Editor's Note: The full report, as well as trend charts and rankings for metropolitan areas and county grades are available at [Lung.org/sota](https://lung.org/sota)

The American Lung Association's 2020 "[State of the Air](#)" report found that every county in Connecticut continued to earn failing grades for ozone pollution, despite marginally less unhealthy days. Connecticut

Improve Public Health

CO₂ and, methane aren't the only pollutantants emitted from vehicle exhaust. There is particulate matter (pm) and oxides of nitrogen (NO_x) to name two. NO_x + volatile organic compounds + sunlight = ozone, the main ingredient in smog. The American Lung Association gives every county in Connecticut a

grade of F for ground-level ozone. Smog and particulate matter are major contributors to cardio-pulmonary disease and cancer, and is a risk for pregnant women. **Imagine the positive health impacts on communities near major transit lines no longer subjected to the noise a risk for pregnant, NOx and pm from road traffic.** Has anyone quantified the positive impact on real estate values as roadway noise, pollution and climate damage goes away?



Save Money

While an electric vehicle can be more expensive to acquire, the cost of owning one is significantly less than an internal combustion engine (ICE) car according to [Consumer Reports](#). Not only is it less expensive to power a vehicle on electricity, but EVs also need much less maintenance. **The bottom line is that it's half as expensive to drive an electric than an internal combustion engine (ICE) vehicle because of the fuel and maintenance savings.** And the time you save could make it even cheaper. [So can free charging.](#)

While there is variation among EVs in terms of efficiency and electricity rates, a reasonable benchmark is a cost of 5 cents per mile to operate an EV. By contrast, if an ICE vehicle gets 20 MPG and gasoline costs \$3 per gallon, the operating cost is 15 cents per mile. And there are federal, state purchase incentives that can reduce or eliminate the differential in the EV acquisition cost. There are also forthcoming utility incentives that will lower the cost of charging.

Aside from the fuel costs, there are lower maintenance costs.

With approximately 90% fewer moving parts in an electric vehicle relative to an ICE vehicle, there is simply less to maintain and fewer things to break. An EV has no spark plugs, catalytic converter, alternator, transmission, timing belt, water pump, and doesn't need oil changes to name a few examples. [A recent analysis conducted by EV Club of CT President Barry Kresch shows tens of thousands of dollars savings accruing to the Town of Westport after the PD opted for a fully-outfitted Tesla Model 3 squad car rather than a Ford Explorer \(gas powered ICE\).](#)

Drive More Efficiently

Regenerative braking, where the engine slows the car and recaptures some of the kinetic energy to store in the battery, means there is less wear on the friction brakes and the energy isn't wasted and converted to heat lost in the atmosphere. It is not uncommon to go 70,000 or more miles before brakes need to be serviced on an EV.

**JULY 27,
2021**

**7 PM
FREE ZOOM WEBINAR**

**Advance registration
required on evclubct.com or
sustainne.com**

**HOW TO SAVE
MONEY ON
YOUR NEXT EV
AND GET FREE
CHARGING**

Guest Panelists:

Barry Kresch, President EV Club of CT

Paul Vosper, CEO of Juicebar

Analiese Paik, CEO of Sustainne

This event is produced and sponsored by the EV Club of CT and Sustainne as a public service and co-hosted by Sustainable Westport and the Town of Westport.



Enjoy Reliability

Fewer things to break means fewer trips to the repair shop, less downtime, less inconvenience and more peace of mind. No oil changes saves a quarterly visit to the service department and avoids the time and hassle. A great strategy for someone with a daily commute of 60 miles or less would be to purchase a used EV that still has good battery life, charge it at home and use it as the daily driver. The state of CT's CHEAPR program now offers cash rebates to qualified buyers of used EVs. If you find DEEP's website confusing, join us on July 27, 2021 where we'll explain it in consumer-friendly English during our free webinar, [How to Save Money on an EV](#).

Have More Fun Driving

EVs have instantaneous torque. Hit the accelerator and the electric motors immediately respond. This is why performance EVs can outgun the high-performance ICE vehicles. On Connecticut roadways, especially congested highway and parkway entrance and exit ramps, the instant speed means you can maneuver that much more quickly and safely. EVs come with

advanced safety and drive assist features that make your drive on our busy roadways safer. Bumper to bumper traffic? Turn on autopilot, keep your hands on the wheel and eyes on the road, but give your outstretched legs a break and let the car do the start and stops for you. Your daily commute just more relaxed.

Save Time

You'll never have to go to a gas station again for fuel. That means no time taken out of your schedule to gas up or wait for an oil change or more complicated maintenance or repair. Most EV owners charge their vehicles at home at night and love the convenience. When you get up to go to work, you have a full "tank." When you're away from home, some EV chargers even let you charge at no cost. Your town likely has at least one free charger. Look for them near libraries and town halls; schools can be tricky, especially when in session. [Join us on July 27 to learn more free charging hacks.](#)

Promote Energy Security

The Solar Plus Home

Solar panels generate energy during the day, when most homeowners are not home

There are a number of controllable appliances, like hot water heaters and air conditioners, that can be used to store energy during the day

With the addition of EVs and batteries, even more of that energy can be stored

Solar Plus looks at how more energy can be used in the home, which helps utilities better manage the grid

energy.gov/sunshot

SunShot
U.S. Department of Energy

EVs go hand in hand with decarbonizing the grid and rapidly advancing the shift to [all-electric homes and a distributed](#)

[energy network.](#) NREL (National Renewable Energy Laboratory) is developing and evaluating fully integrated systems that [connect electric vehicles \(EVs\), transportation infrastructure, power grids, buildings, and renewable energy sources.](#)

We can produce the electricity we need from domestic renewables like solar and wind. If you have solar panels on your home, even better (consider adding battery storage for resiliency). The CT grid is moderately clean at present, mainly because the state gets 38% of its electricity from nuclear and almost none from coal; the great preponderance is from natural gas (sigh). There is a mandate for 30.5% of electricity in 2021 to come from renewables, though the state is falling short of that. However, in recent years, the legislature has authorized offshore wind and stationary storage projects, and there has been approval of some community solar. Even if you do not have solar on your roof, you can choose a supplier that generates its energy from renewables at [EnergizeCT](#).

Support Domestic Green Jobs

Green jobs are new economy jobs that are critical to rapidly transitioning the US and world to a sustainable future while growing and creating well-paying, in-demand, skilled jobs (many unionized) in STEM, EV manufacture, EV charging infrastructure, energy storage, solar systems, wind turbines, and all manner of R&D, manufacture, service, maintenance and repair. Ohio's Mahoning Valley is home to a "fledgling electric vehicle manufacturing cluster" that is supported by the government, industry, unions, schools and universities working in concert with one another to ensure workforce training matches job creation. [Read about this exciting workforce development plan and growing EV industry in Ohio here.](#) Now imagine if we had that in Connecticut.

The EV Club of CT meets online monthly and all drivers are

welcome, as are EV-interested. Please comment below or send us your inquiries.

Plug In America Unplugs

Dealers Pressure Plug In America to Back Away From Direct Sales

Plug In America (PIA) has up until now played an important advocacy role in the effort to pass SB 127 in Connecticut and similar direct sales laws in other states. They acted as a clearinghouse for a lot of information from economists, academics and others that supported our arguments for EV Freedom, and did a lot of coordinating between the numerous parties involved, including the EV Club, manufacturers, environmental organizations, lobbyists, among others.

As of now, however, the coordination Zooms have stopped and the content has been removed from the PIA website. We had copies of some of the content, and what we have is now [posted](#) on the EV Club website.

PIA has a business called PlugStar. It is a training program to help dealerships become more effective at selling EVs. The dealers pay for this and it is a meaningful revenue stream for PIA. The dealers threatened to terminate their arrangements with PlugStar unless PIA stopped supporting direct sales. The board of PIA has caved and directed that the ongoing advocacy efforts in this area cease. This is not just a CT thing.

Needless to say, those of us in the EV community were gobsmacked by this “pulling the rug out from under” move at a critical time. And we’re surprised the organization doesn’t have bylaws in place to provide separation and deal with what seems an obvious potential for conflict. We blame PIA for compromising their principles, but, of course, it was the dealers that put them in this position. They show their colors that competition is good for everyone except themselves.

This is from the PIA website:

Plug In America is a non-profit, supporter-driven advocacy group. We are the voice of plug-in vehicle drivers across the country.

It is clear that the position they are taking runs counter to their mission and that they have now become the voice of entrenched interests blocking progress.

Our club would like to see dealers up their game when it comes to selling EVs, but we don’t agree with the franchise laws being used to stifle competition. The majority of EV sales, both nationally and in CT, are from direct sales.

To the extent that club members and readers of this blog donate to PIA, we recommend sending those funds to other organizations instead. You can find a long list of worthy options in the [CT Electric Vehicle Coalition](#).

The EV Club has also filed a Freedom on Information Act Request to obtain the relevant backup documents underlying the decision.

Rivian Alerts Reservation Holders in CT, Urges Support of SB 127

Rivian mobilizes reservation holders for support

For those holding reservations for an electric pickup truck or SUV from new EV-exclusive manufacturer Rivian, where and how they will get possession of their vehicle when deliveries begin later this year remains unknown. Like Tesla, they are going the direct sales route. Unlike Tesla, they are just getting started and running the direct sales gauntlet in many states across the country. The issue is once again before the legislature in CT. This club supports it (SB 127). Below is the text of the letter sent by Rivian:

Dear Rivian Community Member,

Help us ensure your right to buy and take delivery of electric vehicles in Connecticut!

EV enthusiasts in Connecticut are rallying around SB 127, a bill that would enable Rivian to make vehicle sales directly to customers.

This bill's passage means that electric vehicle companies like Rivian will be able to obtain a state dealer license directly. Without this legislation, Rivian and other EV manufacturers won't be able to open retail sites, offer test drives, or sell directly to consumers. Don't worry – whether or not this legislation passes, you'll be able to buy and take delivery of your Rivian! The success of SB 127 simply protects your rights to learn about and purchase EVs in your home state.

Connecticut's dealer associations oppose this bill. We're asking that you and the broader EV community make your support for SB 127 known.

Here's how you can help:

Earlier today, there was a hearing on SB 127. Rivian, other industry members, and interest groups all testified in favor. Please lend your voice by urging your representatives to advance this legislation. The easiest and most effective way to have your voice heard is to email your representative telling them you support this bill.

[Click here to find your representative](#) and email or call saying that you support holding a vote and passing SB 127. If you're sending an email, please also include Roland Lemar, the Chair of the Transportation Committee, as a recipient. Email: roland.lemar@cga.ct.gov.

To learn more about the benefits of direct sales, please [read this blog post](#) by the EV Club of Connecticut.

Thank you for helping us keep the world adventurous forever.

Team Rivian

**SB 127 Direct Sales Bill
Public Hearings Held on 2/19**

SB 127 – Permit EV Exclusive Manufacturers to Sell Direct in CT

A virtual public hearing was held yesterday by the legislature for this bill. Both written and oral comments were solicited.

Of the 76 [written comments](#) and a full day of Zoom testimony, every consumer that testified was in favor of passing this bill. Not really a surprise that consumers support a consumer-friendly bill. It is still opposed by dealerships and the OEMs. Nothing has changed.

It is difficult to read the tea leaves regarding the impact of testimony, pro or con. The bill has to pass a committee vote and then be called for a vote in both chambers. We are encouraged by the large number of comments submitted and the support we are receiving.

Judging by the response in the testimony, constituents are sending a message: protecting the environment is important and consumer choice is important, more important than protecting outdated laws.

Special thanks to Senator Haskell and Representative Steinberg who submitted the bill, as well as Representatives Wood and Michel who came on board as co-sponsors.

This is a link to the full (7.5 hours) video which is posted to the Transportation Committee's [YouTube Channel](#).

Some relevant time-stamps:

Tesla – 1:29:58

Lucid – 5:13:56

Rivian – 6:39:27

Senator Will Haskell (bill sponsor) – 2:30:19

Mike Liebow (Tesla Owners Club) – 5:30:46 – And check out his pointed comments [here](#)

Leadership of EV Club CT:

Analiese Paik – 5:35:42

Paul Braren – 6:52:13

Barry Kresch – 7:10:40

Beats Netflix!

Thanks to all who were involved in this effort. And let's keep at it.

Paul Braren also wrote a detailed and thoughtful piece on his [blog](#).