

Absent Software, JuiceBox Chargers May be Dangerous

Absence of Software Could Cause a Failure to Regulate Current

We're not trying to be alarmist but we are trying to help spread the word of a potentially serious safety situation.

Abrupt Departure

Enel X Way, the manufacturer of JuiceBox EV charging equipment, made an announcement on October 2nd that was shocking in its abruptness. The company said it was pulling out of North America as of October 11th. As far as we know, there was no advance warning given to commercial or residential customers, or to utilities that include this equipment in managed charging programs. That was the case locally with Eversource and UI, which have been trying to find a path forward.

Without the software, the commercial units do not work. Initial reports were that residential equipment could be used as a "dumb" charger," meaning there would be no app functionality or connectivity and, unless a workaround were developed, customer enrollments in managed charging programs with this equipment would be terminated. That has probably happened at this point.

Inability to Control Amperage

Consumer Reports sent a [letter](#) to the Federal Trade Commission in October, which was co-signed by 65 JuiceBox owners. Among the lengthy list of issues they raise, two in particular stand

out. First, absent the software, there could be the loss of “potentially critical functionality that allows them to adjust the amperage coming into the car from the charger. This means that consumers who are unable to adjust their settings before the October 11 deadline could see their chargers push too much amperage into the vehicle, potentially damaging the EV’s battery, shorting out their breaker box, and posing a risk of fire.”

Uncertain Path Forward

Since the initial announcement, it has been reported, for example [here](#), that the company has hired B. Riley Advisory Services to organize a managed liquidation and auction of its assets with an eye to maintaining functionality. This may be more difficult than it sounds. Enel X does not embed the Open Charge Point Protocol into its equipment in a way that makes it straightforward to migrate to another company’s platform. So, a hoped for short-term bridge solution is probably not in the cards.

Security Flaw

That leads to the second serious issue which is, again according to Consumer Reports, a security flaw in the software that can expose a user’s WiFi credentials. This is from the chip and firmware used in the equipment made by Silicon Labs, and there are no plans to update it. From the perspective of the utilities, even if the equipment comes back on line, this security flaw could represent potential exposure. If the equipment does come back online, it is not likely to be able to be re-enrolled in managed charging. These products have been removed from the qualified products list (QPL) by both Eversource and UI.

Consumer Reports characterizes the company’s behavior as “egregious,” and notes that these level 2 chargers cost about

\$600 (residential) to as much as \$1600 (commercial).

For managed charging, the quickest way to get back online is to re-enroll using telematics if you have an eligible vehicle. Regardless of managed charging participation, the safest route forward is to replace the charger. Unfortunately, it is not permitted for the utilities to give another incentive. The program design does not include eventualities for companies that bug-out.

The Consumer Reports letter concludes by asking the Federal Trade Commission to take action to protect consumers on the basis that this constitutes a deceptive or unfair business practice.

United Illuminating About EV Charging Incentives

[United Illuminating CT EV Charging Program FINAL 02182022](#)

Single Family Residential Charging Incentives

Post by Barry Kresch

Charging Incentives Via The Utilities

The incentives drafted by the Public Utilities Regulatory Authority that will be made available through Eversource and United Illuminating (commonly referred to as utilities, but in regulatory parlance known as EDCs or electric distribution companies) have been mostly finalized. There are a number of parts to them and we will be writing about them periodically over the next few weeks. There are subsidies for residential, commercial, municipal, and fleets. The residential charging program includes incentives for multi-unit dwellings (MUD) as well as single family. Incentives include subsidized charging stations, installation, make-ready, discounts on electricity, and demand charge mitigation.

The grid at the top and the explanation below cover the incentives for single family residences, which became effective on January 1, 2022.

The incentives for charging stations require the purchase of utility approved hardware. Incentives are not retroactive. **The list of approved chargers will be published on January 20, 2022.** Approved chargers will be smart chargers. Taking the subsidy requires enrollment in the demand-response charging program.

Residential Single Family Incentives

- Up to a \$500 incentive for purchase of a level 2 smart charging station. Smart = WiFi connected at a minimum of 25 MBPS or cellular service, 4G minimum.
- Up to a \$500 incentive to bring a 240 volt line to the garage, if needed.
- Owners give the utility permission to see charging data.
- Up to \$200 per year for participating in demand-response charging events. Two year commitment required.

It is possible to get charging incentives for a non-networked (i.e. dumb) charging station that may have been previously installed or even for one that is bought new. In this case the charging information can be obtained either via vehicle telematics (if the vehicle has that capability), or the utility can send a device that will enable a dumb charger to access WiFi. There will be no charge for this device. The EDCs will be publishing a list of which vehicles qualify for telematics.

A \$100 enrollment incentive is offered to people who participate using either telematics or a charger upgrade device.

- An owner buying a new dumb charger is not eligible for the hardware subsidy, but is eligible for the installation subsidy.

The managed charging program in year one is limited to a demand response program. **EV owners can get up to \$200 per year** (\$50/month over 4 months) for their participation, whether that participation comes via a smart charger, telematics, or upgraded dumb charger. The demand response program is in effect from June 1 through September 30. During high demand periods, the utilities are permitted to reduce the rate of charge going to your vehicle. The vehicle will charge at roughly the rate of a level 1 charger during these periods. Typically, an event will last up to 3 hours and occur between 3:00 – 9:00 PM. There can be up to 15 events per month. Customers will be notified in advance of these events and be permitted to opt-out. If a customer opts out of 2 or fewer events and is plugged in at least once per month, they still qualify for the \$50 monthly incentive. A 2-year commitment is required. Event notifications are to be communicated via smartphone app, web portal, email, or text message, usually the day before the event, but sometimes the day of the event. If you are not home and therefore not plugged in during an event, and have not opted-out, that counts as participation.

The demand-response incentives will be paid off-bill after the end of September.

There is no incentive for those who trickle-charge (level 1).

If a home does not have enough space in its panel to accommodate an EV charger and wishes to upgrade electric service, that is out of scope of the program. Service upgrades can run \$5000 or more. Before doing that, it may pay to find out how much room you have or whether you can share a circuit. Perhaps you can install a lower-powered unit than you originally planned.

An Advanced Managed Charging program will be offered beginning in 2023. Details have not yet been finalized.

If someone uses the hardware and installation incentives, but then does not allow the demand-response throttling, and therefore will not collect any of the \$200 incentive, it is not known if the EDC will try to claw back the hardware and installation incentives.

Note: Eversource is maintaining its Connected Solutions branding and migrating existing customers into the new program.

We are planning a virtual meeting for January 25th at 7:00 PM, which will include speakers from PURA and UI.

This is the Eversource [splash page](#) with links to apply for the incentives. This is the [UI page](#). There is still being work done on the back end and the application portals will be open by the end of Q1 2022.

Incentives available to Eversource and UI customers only.

New EV Rate Design Released by PURA

Public Utilities Regulatory Authority (PURA) Directs Utilities to Offer EV Charging Incentives

The final rate design adjudication was released on July 14th. Even though it is the final version, it actually isn't quite final yet. We now know a lot about the program, but the document creates working groups to fill in unfinished gaps on some important details, such as some rates, approved equipment, etc. The PURA doc is uploaded to the website as a blog post [here](#). It doesn't exactly read like Jurassic Park, but we need this kind of thing if we are to wean ourselves off "dino juice."

The program is quite comprehensive, containing incentives for residential and commercial, the latter including workplace charging and fleets, and which also applies to municipalities. The incentives cover hardware, service upgrades, make-ready, demand charge mitigation, and discounted electric rates.

It is important to note that this program takes effect in January 2022. It is not retroactive. If you purchase a charger tomorrow, it will not be eligible for the subsidies.

Below is a summary of the incentives referenced in the chart at the top of the blog post. These are hardware and installation-related discounts:

- A residential incentive of up to \$500 for the cost of an EV charger. This incentive is for a smart charger, which is a WiFi-connected charger. EV charger prices vary, in

part depending upon how many amps are drawn by the charger, but according to MYEV.com, the range for a smart charger is \$600-\$800. If you take advantage of this incentive, you are required to participate in a managed charging program. The point of the connected charger is to enable the utility (which is also known as an Electric Distribution Company or EDC) to see and communicate with the charging unit.

- Also for a residence, there is a subsidy to help with the cost of an electric service upgrade if that is necessary if your current panel does not have the capacity to accommodate the added amperage of an EV charger. The amount of the subsidy is not yet determined.
- There is no mention in the chart of a subsidy specifically for installation, so we assume for now that the \$500 applies to both hardware and installation. Installation costs can vary considerably depending on how far your panel is from your garage. It could be as much as \$1,000.
- There are similar incentives offered for multi-unit dwellings (MUD), workplace chargers, and make-ready. The incentive is 50% of the cost of the charger subject to a cap for the site and a minimum number of charging ports. Note that this is ports, not chargers. There are dual-port charging units. There are higher site caps for MUDs, public level 2, and DCFC charging in underserved communities.
- There is a 100% make-ready incentive, which means the EDC will pay to bring the power to where the chargers will be installed. This is a big deal.
- Finally, there is a subsidy of 50% for the installation of a DCFC charger, which is short for DC current fast charger, also known as a level 3 charger. These are commercial, high voltage units that can quickly charge an EV capable of accepting a fast charge, which applies to most battery electric vehicles.

- There will be a list of specific approved charging equipment. This is necessary for the utilities to be sure they are able to get the information they need from the charger. This list will be finalized later in the year.

Residential Incentives for Electricity Usage

As noted in the first bullet about residential charging, a household can receive an incentive for participating in a managed charging program. There are 2 levels, called basic and advanced. As mentioned earlier, receiving the incentives for the hardware require participation, along with giving the EDC permission to capture data from the charger.

- Basic incentive. In this program, a consumer will be notified of an upcoming demand response event (i.e. when the EDC is expecting there to be a high demand for electricity and they need to take measures to avoid brownouts or blackouts). The consumer has the option to decline participation. However, the default setting is opt-in. Incentives are awarded for participation. The particulars are still being developed, but there is a cap of \$200 per year, which will be sent as a direct payment to the consumer.
- Advanced (direct load control). The consumer will set charging sessions (via app, web portal, email or text) and the EDC has the right to throttle the rate of charge. The particulars of the incentive are still under development. Your participation level will influence the size of your incentive. We hope this is not too burdensome a level of admin for the consumer.
- The Authority has directed the EDCs to submit recommendations for EV rates for MUDs, which could involve sub-metering.

Note: A common way of protecting the grid, which is used in other places but is not part of this program, is time of use (TOU) charging. We are disappointed that this isn't part of the program because it is a very simple, easy to understand, no maintenance approach. If you charge during off-peak hours, you get a lower rate. Easy. The adjudication specifically states that it doesn't foreclose moving that way at some future point. There are regular evaluation points built into this 9-year program. And there is nothing to say that TOU can't be combined with managed charging. Theoretically, if every EV (assuming many more of them than there are today) started a charging session at the first minute of the off-peak period, there could be a demand surge, but managed charging could mitigate that.

There is an existing installed base of EV chargers, and many of these, my guess is almost all of them, are so-called dumb chargers. They are not WiFi enabled so the EDC can't see or interact with them. The program tasks the utilities to develop a workaround to include these chargers as it could jumpstart program participation. There are existing programs at other utilities, Con-Ed comes to mind, that do just that. With Con-Ed, the driver gets a flash-drive type device to install in the car's USB port, or with some manufacturers, there is the ability to connect directly to the telematics of the vehicle with the owner's permission, and incentives will be developed to reward off-peak charging. This actually comes a little closer to time of use. Finally, a recent development is that there is equipment coming on the market that can add connectivity to a dumb charger. PURA is aware of this, as well as developments in better accessing vehicle telematics, and there is the potential for this part of the program to evolve.

The \$200 cap on residential demand response rebates seems low to us. The concern is the lack of differentiation between one and two (or more) EV households. We want to see all vehicles participating.

Demand Charges

Demand charges affect commercial establishments. If the demand for electricity spikes for a period of time above normative levels, electric rates increase substantially. Demand charges have been a barrier to the installation of level 3 charging stations. The adjudication directs the EDCs to maintain a temporary rate-rider to mitigate demand charges while taking the time to develop a more permanent and sustainable solution. Demand charges were originally developed so that those putting the most strain on the grid contribute disproportionately to necessary upgrades. These rules were developed long before the modern EV and definitely need to be re-thought.

Outreach

On balance, this is a strong program. We look forward to seeing, and if possible, being a part of, how it evolves. We intend to keep our members informed and hope the outreach, in general, is effective so it hits the ground running in January!