Millerton's Earth Day

Electrons in Your Tank

One hesitates to say much about the charging situation except that it is changing so quickly, this sentence is already out of date.

Recently, there were literally dozens of charging-station makers. Expect only handful to survive. Among them will be Tesla's Supercharger network. Others with sizable installed bases are EVgo, ChargePoint, and—distantly—Greenlot. The situation is volatile enough a determined challenger may yet leapfrog them all.

Moreover, the business is at the stage of development when the engineers are still in charge. The humanities majors haven't yet simplified it for the vast majority of eventual buyers, who just want it to work.

At the risk of being too technical ourselves, what's available now is a very spotty but rapidly growing national infrastructure of Level 2 chargers, which operate on 240 volts (like

your clothes dryer) and deliver from 7 to 19 kilowatts on a 32-amp circuit. This is a huge improvement over Level 1 chargers, which worked on 120 volts. These first-draft chargers would give only 4 to 5 miles of range for every hour of hook-up in some parking lot Overnight a circuit in a home garage could build 40 or 50 miles of range, often all the cars could absorb and plenty enough for local errands and short commutes.

Level 2 chargers are meant for the new generation of EVs, just now starting to proliferate. With bigger motors and more battery capacity, the car easily handle a typical suburb-to-city-to-suburb commute with possibly an hour or two of insurance juice imbibed from a charger during the day. Level 2's can pump out 180 miles of range in 8 hours, or 20 to 25 miles per hour, depending on the rate of the car's onboard charger and the Level 2's built-in performance. For onboard charge "acceptance," 6.6 to 10 kW is typical among 2019 and 2020 EVs; the newer Teslas have onboard chargers rated at 17.7 or 18.8 kW, but they use their own blisteringly fast protocol—one of brand's best benefits.

Commuters contemplating a new mid-size EV: Unless your employer does you the favor at work, and big ones will sooner or later, you'll need to charge at home. This means buying a 240v charger Level 2 charger, which range from $400 to $1,000 or so, plus wiring and installation. There, among the makers are Juicebox, ClipperCreek, ChargePoint and AeroEnviornment. Get at least 32 amps. Level 2 is more than enough. Just household current (Level 1) will be glacially slow, while Level 3 is not yet necessary—and several times as costly to boot.

So for now, Level 2, which all new EVs are equipped to handle. (Many also do Level 3, in either the European CCS protocol or the Asian CHAdeMO or both, labelled "combo.") Figure conservatively 20 miles of range per hour of charging. So if you're low on a shopping trip, budget time enough at a charger to get home.—**Potter Hamstra**