Scott Little has an extensive collection of electric vehicles, some of which he's converted to electric himself. The collection includes a golf cart, dune buggy, go-kart, fire wagon, riding lawn mower, Nissan Leaf and Tesla Model S.

An Electrified Life

STORY BY ED CROWELL
PHOTOS BY ZACH RYALL

Scott and Stephanie Little have such a large fleet of innovative vehicles, they could put on an electrifying street parade in their Caldwell County community of Dale.

Scott Little, a physicist and farmer, could drive his Tesla S sedan. Stephanie Little could follow in her Toyota Prius hybrid or their older Nissan Leaf. Other family members could drive the couple's three golf carts, riding mower, dune buggy, small fire wagon with a water tank and itty-bitty go-kart.

Scott converted the mower, buggy, fire wagon and go-kart from gasoline engines to battery power in his tool-filled garage. He keeps all the vehicles charged for work and play on the couple's 90-acre farm.

Vehicles are not the only electric-power items on the farm. Five electrically activated gates provide access to the couple's pastures and fields. Solar panels atop the large carport produce enough power to charge all the vehicles.

Scott Little's show of electrical force is a natural outgrowth of his professional life and his semi-retirement puttering.

"Instead of drilling Alaskan oil fields, we need to be spending our time and energy supporting alternative energy technology," he said. "My solar panels generate as much energy as my Tesla uses, so in effect I'm driving around free, energy-wise."

He estimates that without the solar power the cost of electricity for his Tesla "fill-up" would be about $10.

With a physics degree from the University of Texas, Scott Little worked in Austin for several scientific instrumentation firms. Then he turned to exploring new sources of energy and rocket propulsion with Austin-based EarthTech International, a privately funded research organization. He still "dabbles" in some physics experiments for EarthTech on the property the couple bought 10 years ago, he said.

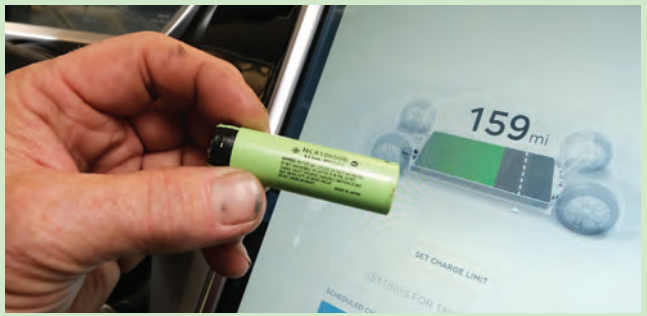
SLOWLY TRENDING

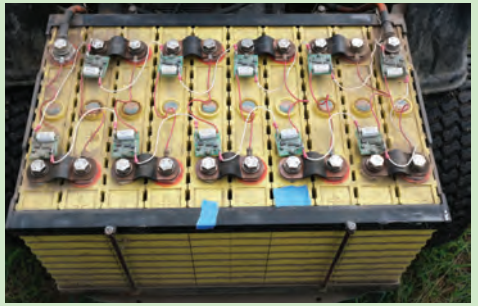
The Littles aren't the only ones sold on electric vehicles in Bluebonnet Electric Cooperative's service area, but they are the vanguard. All-electric vehicles and the necessary public-charging stations to keep them going on lengthy road trips are slowly gaining traction in Bluebonnet's area. However, the numbers are still tiny compared with gasoline- and diesel-powered cars, SUVs, pickups, tractors, mowers and large trucks.

In several counties that Bluebonnet serves

Continued on page 20

Scott Little's Tesla features a large touch-screen display, background. From an iPhone app, he can start the car, turn on the air conditioner and monitor aspects of the vehicle's health and performance.





Above, Scott Little holds a battery about the size of the 7,000 contained in his Tesla.

Left, the battery array he installed on a riding lawn mower to convert it from gas to electric power.

All work and no play is not Scott Little's style. Though one of his grandchildren is more likely to drive this tiny electric go-kart, Little is able to squeeze his 6-foot-9 frame into it and dash around his acreage.

Continued from page 18

— Bastrop, Caldwell, Burleson, Lee and Washington — only 53 all-electric cars were registered as of early October. Bluebonnet also serves parts of Travis and Williamson counties, which have large urban populations, more commuters and 5,313 registered electric vehicles.

THE RIGHT FIT

The Littles first tried an electric vehicle in 2011 when they bought a Nissan Leaf. Scott then decided to buy a Tesla in 2013 on a visit to Phoenix. "I was at a random mall and I stepped through a random entrance and there right in front of me was a Tesla showroom. It was like a moth to a flame, and a couple of months later I had one delivered to me." Scott, who is 6-foot-9, said, "A game changer for me was when I first sat in the showroom car and I fit."

Some of the Littles' electric vehicles make handy farm equipment. Organic vegetables are grown on the farm, which includes dairy goats, chickens, horses and a donkey. The electric carts carry hay, feed and the picked vegetables as Scott and Stephanie move around their fields, pastures and pens. The

Continued on page 22

Three types of electric car chargers

Any electric car can be charged at home on a standard 120-volt wall outlet for a three-pronged plug that comes with the vehicle. This generally charges a car at a range rate of only 2 to 5 miles per hour of charging, so drivers need to plug in at least overnight for average in-town trips.

The most common level of chargers found at public stations and in homes uses a 240-volt outlet (the same as required for electric ovens and dryers) and special equipment. An electrician can install the outlets in a garage. The chargers that plug into the outlets are called EVSEs (Electric Vehicle Supply Equipment) and cost $400 to $800. They offer 10 to 20 miles of range per hour of charging. Some workplaces provide this type of charger for commuting employees.

These chargers are called DC-fast or superchargers and use 480-volt specialized equipment. They generally are found at public stations along interstate and other high-traffic highways and can deliver 60 to 80 miles of range in 20 minutes. Most drivers do not charge their batteries to 100 percent at these stations. The time it takes for a full charge increases considerably once an 80 percent level is reached.

Tesla will soon have 12 electric car charging stations in a parking lot at the San Marcos Premium Outlets. A full charge takes 30-45 minutes.

Places to plug in

In a parking lot at the San Marcos Premium Outlets shopping center, behind the North Face store and across from the pet exercise area, six electric car charging stations stand ready. They are Supercharger stations for Tesla owners needing a fill up of electricity.

With the assistance of Bluebonnet Electric Cooperative engineers, the number of stations at the outlet mall along Interstate 35 will double to 12 soon. Sometimes waiting lines of drivers have formed, so Tesla decided to add more charging stations.

Giddings also will soon have Tesla charging stations at the CEFCO convenience store on U.S. 290. The Hyatt Regency Lost Pines Resort and Spa on Texas 71 between Bastrop and Austin has four chargers in the ChargePoint network that Bluebonnet helped install. The resort charges electric cars about 400 times a year, with each charge taking 3 to 4 hours. A Tesla can use these chargers, but they aren't as fast as its own Supercharger.

Dr. Jose R. Maldonado is happy to have a plug-in stop at the San Marcos outlet mall. The family-practice physician lives in Lakeway, 16 miles west of Austin, but regularly drives his Tesla to his hometown of Laredo to care for patients there. He depends on the charging station in San Marcos that is about 200 miles from Laredo.

"I travel 246 miles door to door," he said. "With the 250-mile range of my batteries, I can't take a chance on not having a recharge."

Maldonado appreciates the break from interstate driving during his 15-minute plug-in stops. If his car's charge was nearly depleted and he wanted a full charge, he would have to spend 30-45 minutes at the mall. But eight Tesla Superchargers are available in Laredo, so he keeps charged there.

Maldonado drives a 2017 Tesla P90 SUV. With four sons, he needs the roominess of the large vehicle. "I had a big Audi Q7, but it was diesel and it was polluting the air. I like being green with the Tesla," he said, noting that he also has solar panels on the roof of his house.

Five EVgo chargers for other electric cars are available several yards

Scott Little installed a charging station in his garage. His Tesla's port blinks green when the charger "nozzle" is plugged into the car.

north of the Tesla chargers in the same San Marcos mall parking lot. Tesla owners can juice up there if they have a plug adapter, but only one of the five EVgo chargers is a fast charger. Tesla Supercharger stations are proprietary and not adaptable for other cars.

EVgo calls itself the largest public, fast-charging network for electric cars in the country, with more than 1,000 fast chargers and 350 lower-speed chargers in 34 states. The company says it provides 100,000 charges a month to electric vehicles.

Pricing at public stations varies from free (site owners or local governments provide the service) to a fee per minute, per kilowatt hour or via a monthly membership. One major station operator in Texas charges 4 to 6 cents per minute.

There are several ways to find charging stations. Chargehub.com offers an interactive map of public charging stations across the country. Click on "pump" icons to see what level of charging is available where, with addresses, type of chargers, pricing and contact information. Plugshare.com has another map site, as does the U.S. Department of Energy through its Alternative Fuels Data Center.

Continued from page 20

Littles donate most of their vegetables to the Bastrop County Emergency Food Pantry.

The couple have five grandchildren who visit often. The electric carts and buggy allow them to roam the property.

Scott's Tesla is sometimes dusty from drives along country roads. He said it is a "marvelous hot rod" that can almost silently accelerate from 0 to 60 mph in 4.5 seconds, something he was proud to demonstrate. The four-door sedan has plenty of storage room with a front trunk space under the hood and a trunk in the back. The car is powered by 7,000 batteries, each about 3 inches long. They are spread across the entire floor of the chassis.

Scott remains a fan of the Tesla company and hopes its recent highly publicized management issues won't get in the way of producing new electric vehicles. He's optimistic about Tesla's foray into short-haul trucks with the company's initial order of 40 city delivery trucks for Budweiser in 2019. Development of long-distance electric highway trucks is a bigger hurdle because travel would put a constant draw on the batteries' charge, he said. With start-and-stop city driving, braking produces regenerative power to keep the batteries charged.

See Scott Little talk about his passion in this video: youtu.be/_Mczshfemlw

Scott's five-year ownership of the Tesla leads him to believe that, "I'll never have to replace the batteries. They still have a wonderful 96 percent of their charging power after 75,000 miles. We didn't fare so well with the Leaf. It has 38,000 miles, but the batteries had to be replaced while still under warranty."

He recharges the cars in his garage on a 240-volt circuit he installed. The Leaf has just a 90-mile range, so it barely can go to Austin and back to Dale on one charge, he said. New models of the Leaf have a range of 151 miles. His Tesla has a 255-mile range that makes longer trips easier. The Littles traveled to Nacogdoches (460 miles round trip) with an overnight charge where they stayed and another charge in Huntsville. "It's pleasant to get out of the car on a long trip for half an hour of charging," Scott Little said.

Electric vehicles worth a look

Here are the best electric vehicles (EVs) sold in the U.S. in 2018, according to Edmunds, the nationwide car pricing and evaluation company. (Starting price includes destination fee.)

AFFORDABLE MODELS

Chevrolet Bolt

Starting price: $37,495
EV range: 238 miles

Nissan Leaf

Starting price: $30,875
EV range: 151 miles

Hyundai Ioniq Electric

Starting price: $30,385
EV range: 124 miles

Kia Soul EV

Starting price: $34,845
EV range: 111 miles

LUXURY MODELS

BMW i3

Starting price: $45,445
EV range: 114 miles

Tesla Model S

Starting price: $75,700
EV range: 249 miles

Tesla Model 3

Starting price: $50,200
EV range: 310 miles

Tesla Model X (SUV)

Starting price: $80,700
EV range: 238 miles

Scott Little demonstrates the kind of information that he can view on the large touch-screen display in his Tesla. It includes a web browser and can be split to show maps and vehicle performance.

Electric cars: to buy or not to buy?

It's not the higher price tags that usually hold back potential electric car buyers — state and federal incentives can effectively lower the cost by $10,000. "Range anxiety" may cause hesitancy. When all-electric cars first hit showrooms several years ago, consumers worried about how far they could drive before the cars have to be recharged.

Now that range-per-charge has increased on most electric models, that anxiety is lessening. Also, the presence of plentiful public charging stations in shopping areas, libraries, workplaces and hotels in larger cities has reduced the worries of traveling afar.

With development of more reliable and more powerful battery packs, nearly every major car manufacturer offers an electric model. Another improvement to electric cars in recent years has been how quickly they accelerate. With better batteries and without the weight of a gasoline motor, some of these cars are zippier than similar gasoline models on the road.

Hybrids, which get good mileage using an electric-drive motor at slow speeds before a gasoline motor takes over, have continued to sell well.

Educating car buyers about all these points is the mission of Plug-in Texas, an Austin-based advocacy coalition. The group is supported by General Motors, Ford and Toyota, the Environmental Defense Fund and other organizations, and utility companies CenterPoint Energy, Luminant and TXU Energy.

The cost of batteries for carmakers is going down, said Russ Keene, who handles public relations for Plug-In Texas. That brings lower pricing, increased driving range with battery improvements and a widening of production across electric and hybrid lines.

He compares pricing differences within Chevrolet's current lineup of small cars:

The hybrid Volt is priced at $33,220 while the all-electric Bolt, introduced in 2017, is $36,620. The gas-only Cruze, a comparable four-door small car, is $16,975. But that difference can be somewhat offset by the $10,000 in federal and state incentive programs available for the Volt and Bolt, Keene said.

Buyers appreciate being able to make longer trips. When the Nissan Leaf, for example, debuted in 2010, it had just under a 100-mile range. The 2018 model can go more than 150 miles between charges. The new Chevrolet Bolt will go 276 miles on a full battery.

The typical Texas driver who commutes from home to work and back travels about 40 miles a day, Keene said.

The Bloomberg NEF (New Energy Finance) research company "predicts that by 2040 half of all cars sold in America will be electric," Keene said. "Most people keep cars for 10 years, so it will take some time for people to cycle into new cars."

State and federal incentives for electric car buyers

The state of Texas began offering incentives for all-electric and plug-in hybrid car buyers in 2013. The Legislature passed a revised program effective September 2018.

It offers a $2,500 after-purchase rebate to buyers who apply for the program administered by the Texas Commission on Environmental Quality. The deal ends May 31, 2019, or earlier if the maximum 2,000 rebates are awarded.

New cars purchased or leased from Texas dealers for personal use are eligible, but not fleet vehicles (used cars from rental agencies, governments, dealerships or other similar owners).

Tesla buyers are not eligible for the program because those cars are not directly sold to customers by dealerships franchised in the state. After Teslas are viewed at the company's "galleries" in Texas, buyers order the cars online and they are shipped to Texas with a California registration.

A federal tax credit of $2,500 to $7,500 also is available to purchasers of new electric vehicles in every state. The amount is based on each vehicle's battery capacity and the gross vehicle weight rating. Dealers can help buyers calculate the available tax credit.