

Kentucky Living

CELEBRATING THE ENERGY
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The Great EV ROAD TRIP



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ISSUE

THE GREAT ELECTRIC V ROAD TRIP

CO-OPS CELEBRATE THE EV ERA BY
TRAVELING KENTUCKY

BY KEVIN OSBOURN • PHOTOS BY TIM WEBB



VEHICLE



■ The all-electric Chevrolet Bolt took three teams to various sites throughout the commonwealth. From the east to the west, and north to south, the teams drove a variety of Kentucky terrains.

The era of the electric vehicle is here!

To celebrate, teams sponsored by Kentucky's Touchstone Energy Cooperatives drove an electric vehicle — EV for short — more than 700 miles across the state earlier this year in a goodwill tour.

They stopped at many of the state's attractions, including Cumberland Falls, Buckhorn Lake, the Red River Gorge Geological Area, Ale-8-One and one of Kentucky's biggest tourist attractions: the Ark Encounter. One team even drove the electric car a few laps at the Kentucky Speedway in northern Kentucky.

Three teams posted photos online during their trips and reached 176,000 people on social media with messages about the low cost to fuel an EV: under 3 cents per mile to

charge the battery of the co-ops' all-electric Chevrolet Bolt. The Kentuckians they met along the way, and the team members themselves, were impressed with the car's performance and driving range—over 230 miles with a full charge.

"I had heard that EVs were only good for in-town driving," says Sarah Fellows, communications manager at Nolin RECC, who drove with a friend from Elizabethtown to eastern Kentucky and back with only two stops to charge. "I was pleasantly

surprised how far we were able to go."

Fellows and teammate Leslie Neeley from Kenergy Corp. used the PlugShare app to find charging stations. The trip helped them and other participants realize that traveling long distances in an EV is doable—and fun.

"We had always thought the driving range of EVs was terrible and only suited for city driving," says Cory Ramsey, a road-trip blogger and creator of Map Dot, Kentucky, a project that highlights the state's small towns. "That is not the case, and the acceleration was great. That car can get off an exit ramp or pass another car as good as any."

Ramsey, whose Map Dot team previously had visited all 120 Kentucky counties twice, drove the Bolt with wife Monica and teammate Travis Norton from Bowling Green to Owensboro and back. The team visited Bill Monroe's Jerusalem Ridge home in Rosine. Ramsey played *Blue Moon of Kentucky* at the Bluegrass Music Hall of





■ Left, the Map Dot, Kentucky, team—made up of, from left, Monica and Cory Ramsey and Travis Norton—visited multiple sites during the first leg of The Great EV Road Trip. Above, they stopped for a meal at Farm Boy Restaurant, Morgantown; at right, Cory Ramsey plays a banjo at the Bluegrass Music Hall of Fame & Museum in Owensboro; and, below right, the team visits the home of Bill Monroe on Jerusalem Ridge in Rosine.

Fame & Museum in Owensboro after a museum board member showed him three banjo chords.

“I did not realize I could play the banjo,” Ramsey says with a laugh. “That was a cool part of the trip for me.”

To the mountains

On the second EV road trip, the co-op team of Fellows and Neeley drove the Bolt east from Nolin RECC’s E-town headquarters. They stopped at Lincoln’s Boyhood Home near Hodgenville, where the 16th president’s family lived along Knob Creek until he was about 7 years old.

From there, they visited the nearby Kentucky Railway Museum in New Haven and the world-famous Maker’s Mark Distillery in Loretto. The Maker’s Mark campus is powered by Danville-based Inter-County Energy, which worked closely with the distillery last year to install an



EV Questions and Answers

Q. What are the types of plug-in electric vehicles?

A. The two major types are plug-in hybrids and battery electric vehicles. Plug-in hybrids use electric batteries that power the vehicle 25 to 50 miles before switching to a gas engine. Battery recharging is done by plugging into an electric power source.

Battery electric vehicles have no gas engines and are efficient, with many models featuring government rebates and attractive dealer warranties. The powertrain has a battery that must be recharged.

Q. What do electric vehicles cost?

A. The price range is wide. Several popular models are priced from \$20,000 to \$40,000. In comparison, higher priced SUVs run from \$50,000 to \$65,000, while luxury sedans range from \$80,000 to \$110,000. In the near future, many more choices are expected. Some new electric vehicles qualify for a federal tax credit up to \$7,500 depending on battery size, but EV tax credits are being phased out and vary by manufacturer.

Q. How far can a battery electric vehicle travel?

A. Range depends heavily on driving style and average speed, but most newer models can travel 200-300 miles before they need to be recharged. Studies show that many drivers travel less than 40 miles a day, and the driving range of the cars continues to improve.

Q. How long does it take to recharge an EV?

A. The inverter and the quality of the charger make a big difference in the time it takes to recharge. Level 1 chargers that use a standard 120-volt outlet provide 3 to 5 miles of range per hour of charging. Using a 240-volt Level 2

charger, most vehicles get about 20 miles of range per hour. At 480 volts, Level 3 units typically charge to 80 percent of capacity in 30 minutes or less, but manufacturers recommend only occasional quick charging because that can shorten battery life. Most charging (about 80%) is done at home.

Q. What are the typical battery warranties?

A. The auto industry norm is to warranty the batteries for eight years and 100,000 miles.

Q. How much do home chargers cost?

A. Homeowners can purchase Level 2 stations for their homes at a typical cost of \$300 to \$800, according to a recent study for Kentucky's Touchstone Energy Cooperatives by Advanced Energy. Public Level 2 stations usually range from \$3,000 to \$5,000, depending on amperage, features and installation.

Q. Why are electric cooperatives getting involved with electric vehicles?

A. Co-ops have seen growing interest in electric vehicles. The savings can be significant. Co-ops want to help members who've expressed interest in EVs to make informed decisions.

■ **Top**, a desktop sign informs guests about the charging station available at the hotel in London, Kentucky. The charging station was installed by Jackson Energy Cooperative earlier this year. **Center**, Leslie Neeley talks about the all-electric Chevrolet Bolt's features with Jackson Energy's Susan Woods. **Above**, the Map Dot, Kentucky, team monitors the car's battery on the display inside the car.





■ Leslie Neeley, left, and Sarah Fellows take in the scenery in front of Nada Tunnel in Powell County in the Red River Gorge Geological Area. Neeley and Fellows took a two-day EV tour across the state visiting several well-known Kentucky destinations, as well as a few sister electric cooperatives along the way.

EV charging station for visitors, who come from all over the world.

“Inter-County Energy sees EV charging as a way to meet our members’ needs,” says Dan Hitchcock, Inter-County’s vice president of member services. “A tourist can plug in their car, do a tour of the facility, eat lunch and when they return they are charged to reach their next destination. It’s what the future will be like all across the nation.”

After leaving Maker’s Mark, the team visited Taylor County RECC in Campbellsville, where employees popped the hood of the Bolt and were surprised to learn how inexpensive it is to fuel and maintain an EV. They met co-op employees from South Kentucky RECC at the Niagara of the

South—Cumberland Falls—and saw the Harland Sanders Cafe in Corbin, where Col. Sanders launched his “finger-lickin’ good” Kentucky Fried Chicken.

Neeley enjoyed monitoring the car’s battery-charge level on the dashboard to maximize driving range and marveled at the beauty of Kentucky’s countryside. All along the team’s route, yellow butterweed and other flowering plants spread across fields far into the horizon.

At the end of the day, Fellows and Neeley plugged into an EV charging station at their hotel in London and recharged overnight. Jackson Energy installed the station earlier this year, one of Kentucky’s first charge-station projects between a co-op and a local hotel.

On the final day, the team covered 174 miles without stopping to charge. Fellows and Neeley visited Jackson Energy in Manchester, stopped in the quiet community of Thousandsticks, and went to Buckhorn Lake, the Red River Gorge

How far does \$2.63 drive a car?

The co-op’s Chevrolet Bolt electric vehicle gets about **61 more miles per gallon** than a typical gasoline powered car.*

Gas vehicle: 24 miles
Bolt EV: 85 miles

Source: <http://chooseev.com/ok/savings-calculator>

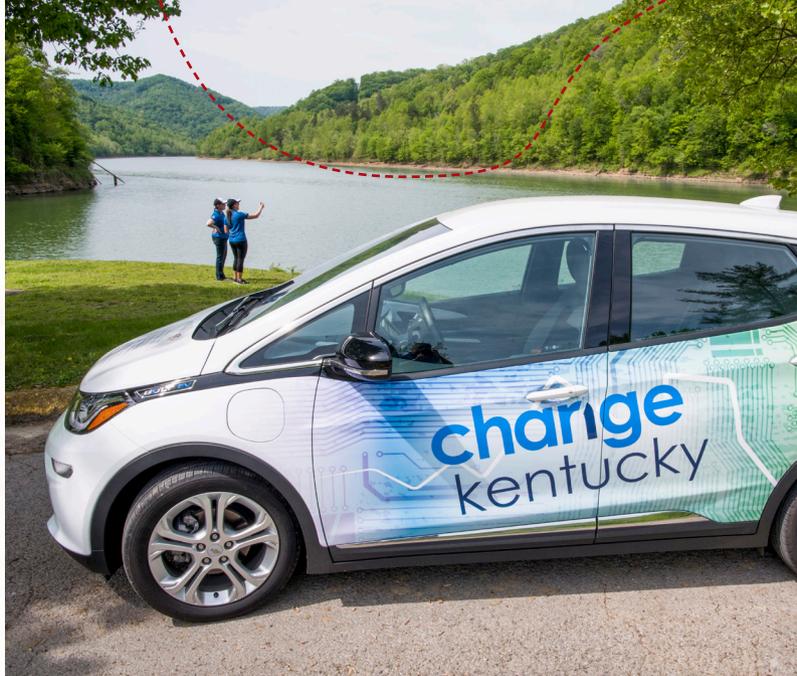
*Assumptions: \$2.63 per gallon, 24 miles per gallon, 11 cents per kilowatt-hour, .28 kWh/mile

Geological Area and the headquarters of Ale-8-One in Winchester.

“I liked how smooth the EV was to drive, especially around those eastern Kentucky mountains,” Neeley says.

Heading north

A third and final trip went from central to northern Kentucky, with Mike Stafford from Owen Electric Cooperative and Gerry James from the outdoors/environmental Explore Kentucky Initiative on board. The trip started at Shelby Energy in Shelbyville, then went to the nearby Diageo Distillery, the



grave of Daniel Boone at Frankfort Cemetery, and finally, north to Owen Electric in Owenton and the Kentucky Speedway, which is served by that co-op.

With no races on the day of their visit, James and Stafford were thrilled to drive the Bolt several laps around the Speedway track.

“It is impressive how quickly the

car accelerates,” says Stafford, Owen Electric’s manager of business and government relations. “We got it up to 93 miles an hour on the track before the car indicated it could not go any faster. It handled really well. It’s got great torque and was incredibly fun to drive.”

The trip convinced James that an EV is a great option for many families.

■ Top left, John May, foreground, of Licking Valley RECC, checks out the interior of the Chevy Bolt. Top right, Neeley and Fellows take in the scenery of Buckhorn Lake in Perry County with the Chevy Bolt in the forefront. Bottom right, Neeley and Fellows visited the Ale-8-One plant in Winchester on the second leg of the EV road trip. Bottom left, Fellows and Neeley consult a *Kentucky Atlas* in Thousandsticks before setting out to their next destination.



Advantages of Electric Vehicles

Much lower fuel costs. At the United States national average price, electricity to fuel an EV is about the equivalent of \$1 per gallon of gasoline.

Less maintenance. All-electric EVs don't require oil changes and have fewer parts to break or repair than gas-powered vehicles.

Environmentally friendly. The U.S. Department of Energy projects EVs contribute about half of the carbon dioxide emissions of an equivalent gasoline powered car.

Better options. The 2019 model year offers a selection of electric powered sedans and SUVs in nearly every vehicle category. Several car manufacturers have announced plans to go all electric with their fleets in the next few years.

Lower prices. Several popular EV models are priced from \$20,000 to \$40,000. Federal tax incentives are available on some models.

More charging stations. According to the Kentucky Public Service Commission, there were 94 public charging stations in the state in June 2019. That number continues to climb.

■ Above right, the Chevy Bolt charges at a station outside a London, Kentucky, hotel. Charging the car for the 700-mile EV road trip (all three teams' routes included) cost less than \$20. At right, Shelby Energy staff check out what's under the hood of the Chevy Bolt.





■ Top left, Owen Electric's Mike Stafford and Gerry James of the Explore Kentucky Initiative, visit Diageo Distillery in Shelbyville on the third leg of The Great EV Road Trip. Above, the team of Stafford and James visit the Ark Encounter in Williamstown. The ark is built to the actual size described in the Bible and is a popular Kentucky tourism destination.

"In a large number of garages and driveways in America, there are two family vehicles," he says. "In my opinion, at least one should be an EV, which can help cut down one's carbon footprint and help save money."

The final stop was a visit to the Ark Encounter in Williamstown, where more than 1 million people visit each year to see a replica of Noah's Ark, an engineering marvel built to the actual size described in the Bible.

Misconceptions dispelled

Members of the three teams were pleasantly surprised about how inexpensive it was to charge the car. Charging the Bolt's battery for 700 miles cost less than \$20. Although

each trip required planning, the teams charged at hotels, grocery stores, car dealerships and tourist destinations.

"We found charging stations easier than we thought," Map Dot's Ramsey says. "And more are sprouting up all the time. Hotels have them these days, or we could use PlugShare. You can install one at home to really have no problem."

One of the most significant surprises was the ongoing savings in fuel by driving an EV.

"The U.S. Department of Energy estimates that in Kentucky, the cost to fuel an EV is the equivalent of about \$1 per gallon for a comparable gasoline powered vehicle," says Tom Castle, senior engineer at East Kentucky Power Cooperative in Winchester.

Electric cooperative members are becoming more interested in EVs. A survey last year showed that 10% of members served by Kentucky's Touchstone Energy Cooperatives are actively in the market for or open to owning a plug-in electric vehicle.



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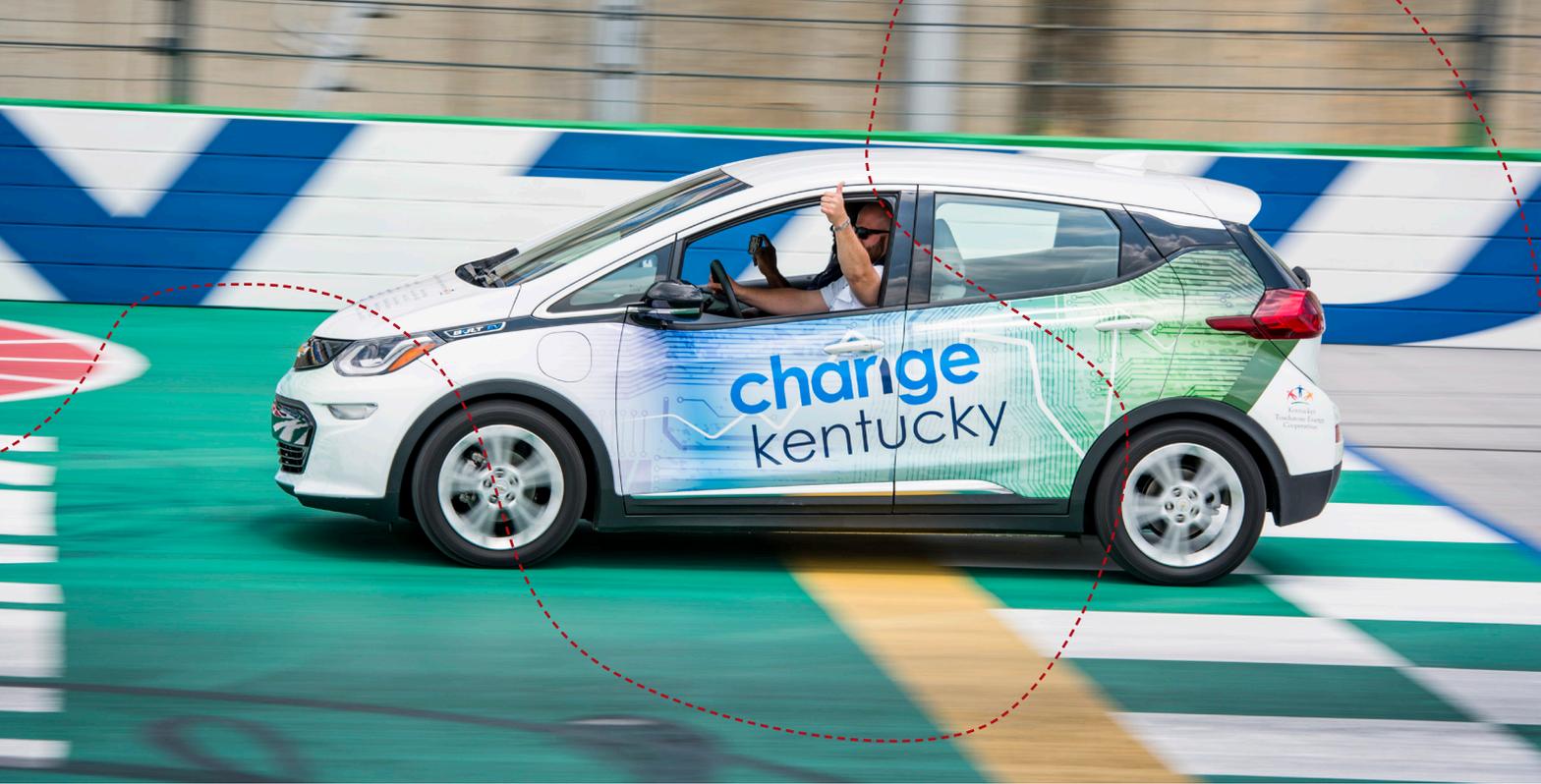
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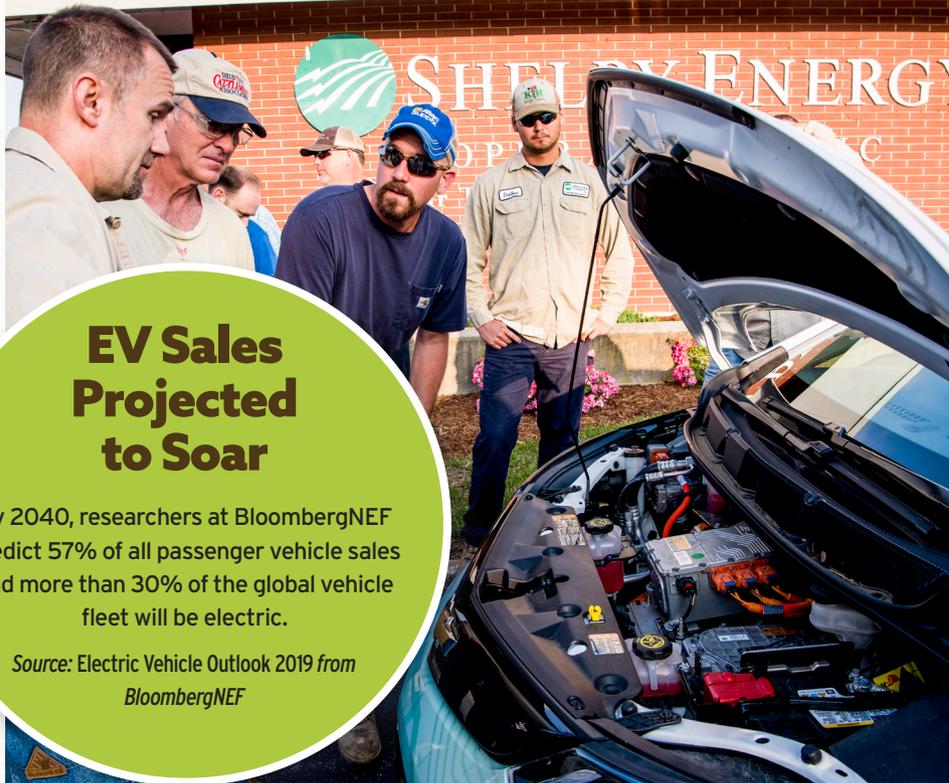
Get more EV facts

Looking for even more electric vehicle information? Visit KentuckyLiving.com for more on the following:

- An overview of electric vehicles
- Is an electric vehicle right for you?
- Nuts and bolts of plug-in hybrid electric vehicles and battery electric vehicles
- The EV revolution
- Charging stations near you
- Consumer guide to EVs

■ Top, the all-electric Chevy Bolt reached a top speed of 93 mph driving around the track at Kentucky Speedway. “It handled really well,” Stafford says. Above right, teams met co-op employees—like these staff members at Shelby Energy—and others all around the state who got to check out the EV up close.

With driving ranges and models expanding and prices falling, both sales and the number of EV models are projected to increase significantly. According to the Electric Power Research Institute (EPRI), by the end of 2019, about 58 models of EVs are expected to be available in the U.S. By 2022, EPRI projects that number will more than double to 132.



EV Sales Projected to Soar

By 2040, researchers at BloombergNEF predict 57% of all passenger vehicle sales and more than 30% of the global vehicle fleet will be electric.

Source: Electric Vehicle Outlook 2019 from BloombergNEF

“Some common misconceptions about electric vehicles are unfair,” Owen Electric’s Stafford says. “For one, their price point does not make them unattainable. Many models are comparable in costs to new, standard gas-powered cars.”

Ramsey says the EV road trips demonstrate that electric co-ops are

embracing the future.

“Co-ops have always led on technology in Kentucky as far back as the lightbulb,” he says. “Now with this electric vehicle technology, Chevy Bolts and other electric vehicles coming into the Commonwealth, they are again leading the charge. It’s co-ops leading the way.” **KL**