

WORK & LIFE

How Much Do Electric Vehicles Cost to ‘Fill Up’ Compared With Buying Gasoline?

Where you live is the biggest factor, and EV road trips could lead to sticker shock

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Auto makers plan to electrify their future lineups, upending the way drivers fuel. Congress just gave a jolt to those efforts, passing a \$1 trillion infrastructure bill that includes billions for EV charging.

What does it cost to “fill up” an electric vehicle? Is it really cheaper?

Data show it is—if you charge at home—to the tune of a dollar or two each day, or a few nice coffees each week. But on road trips, the situation reverses if you stop for a fast charge. Gasoline usually wins out.

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The WSJ crunched the numbers, with guidance and data from automotive and power experts at [IHS Markit](#) and Atlas Public Policy, to figure out the cost of an electric “fill up” compared with local gas prices in 15 U.S. cities.

We chose two popular cars: the 2021 Ford Mustang Mach-E and the Toyota RAV4, both compact crossover SUVs that seat five.

The all-electric Mach-E costs more up front, but qualifies for a \$7,500 federal tax credit.

Some states also offer incentives to chip away at the higher cost of EVs, such as Illinois, which approved a \$4,000 rebate for residents to buy an electric vehicle starting in July.



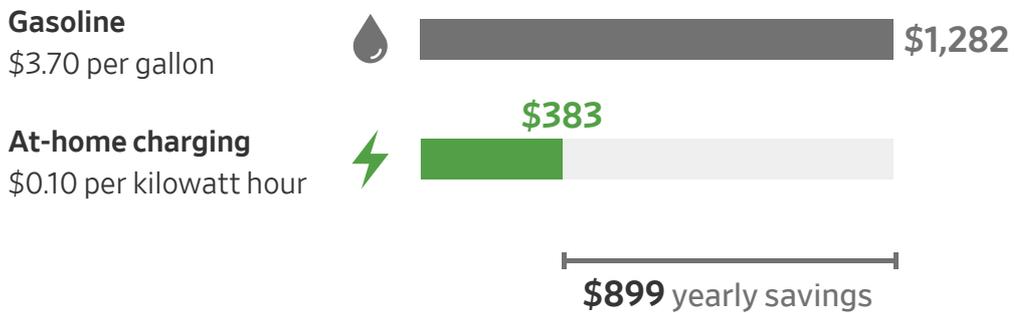
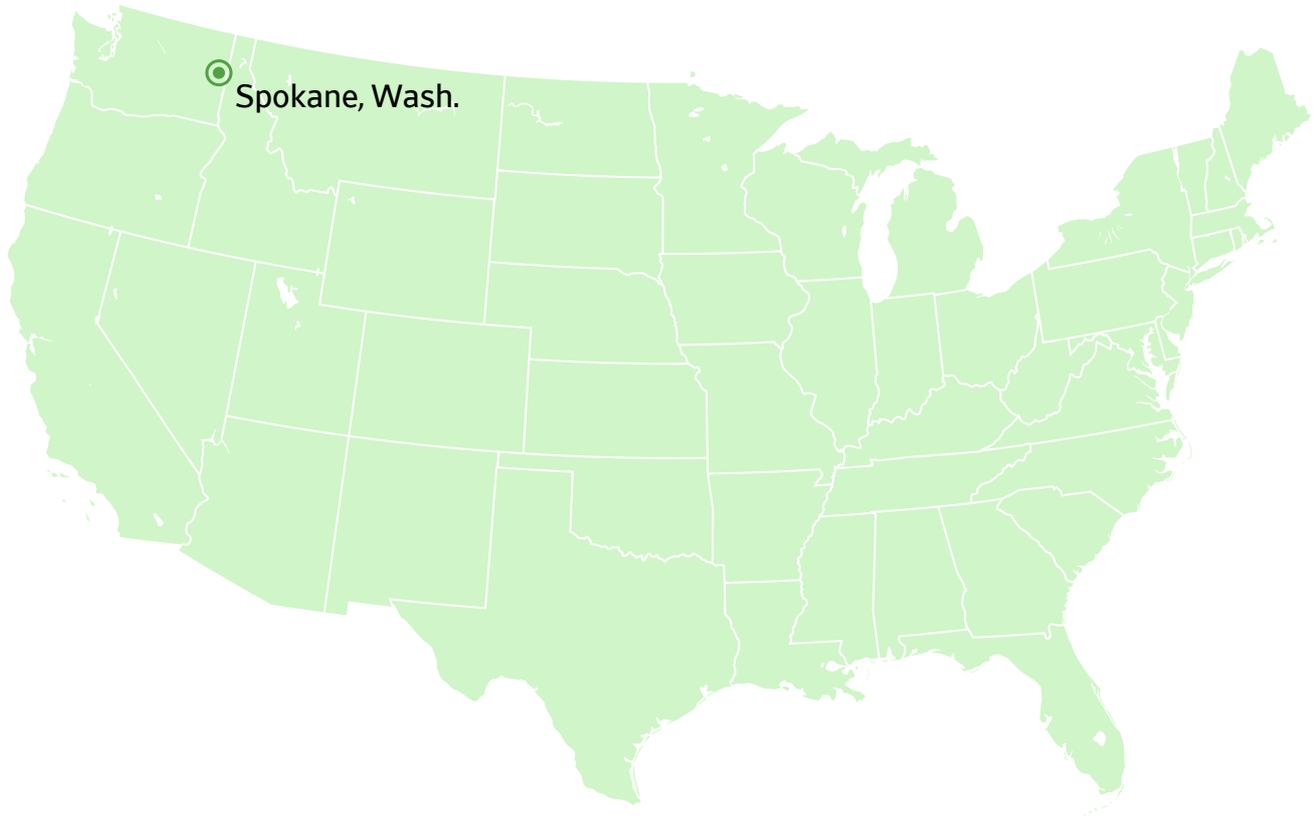
Let's take a drive

Home charging is much cheaper than gasoline, and most EV owners so far have been homeowners.

Who gets the biggest savings?

Costs for typical commuter

Yearly fueling or charging cost if you drive 200 miles a week



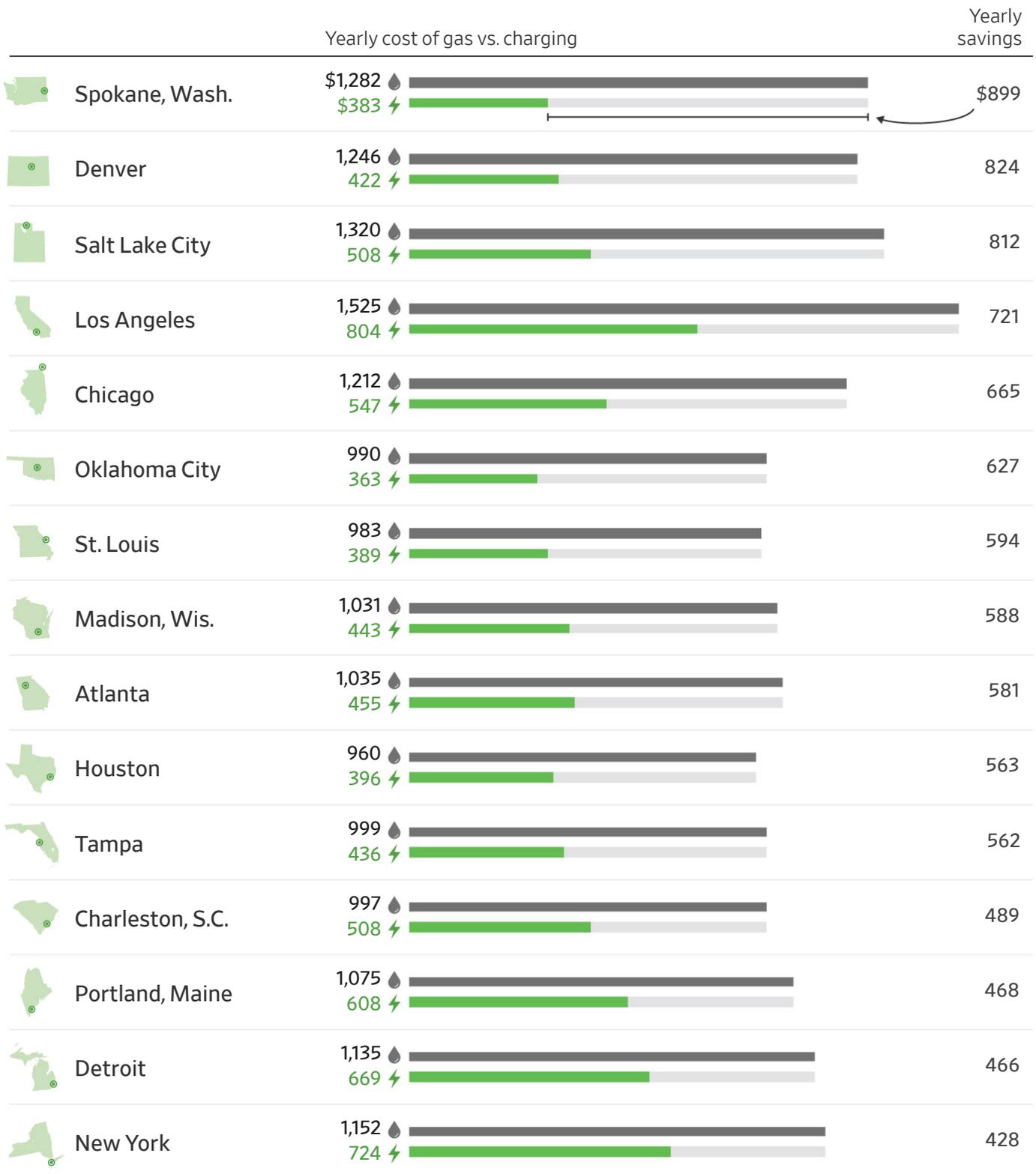
In Spokane, Wash., which has relatively expensive gasoline but low electricity rates thanks to hydroelectric power, a Mach-E owner saves \$899 a year over the RAV4.

In New York City, which has pricey power and gasoline, a Mach-E driver would save less than half as much in a year: \$428.

In all of the 15 cities we analyzed, the Mach-E beats the RAV4 when the driver can take advantage of at-home charging rates.

How much EVs can save you per year

Yearly savings if you drive 200 miles a week, gasoline vs. in-home charging, in selected cities.



Source: WSJ Analysis

But at-home charging isn't available to all drivers.

EV ownership is expected to grow to include more apartment and condo dwellers, who will need affordable charging—a big public-policy issue. Workplaces, apartments and spots like grocery stores are adding low-cost or sometimes free stations that charge over a period of several hours, much like home charging.

EV drivers face other costs, too, such as a 240-volt charging station, which costs around \$500. Hiring an electrician can add another \$500 to \$1,500, according to home improvement website HomeAdvisor.

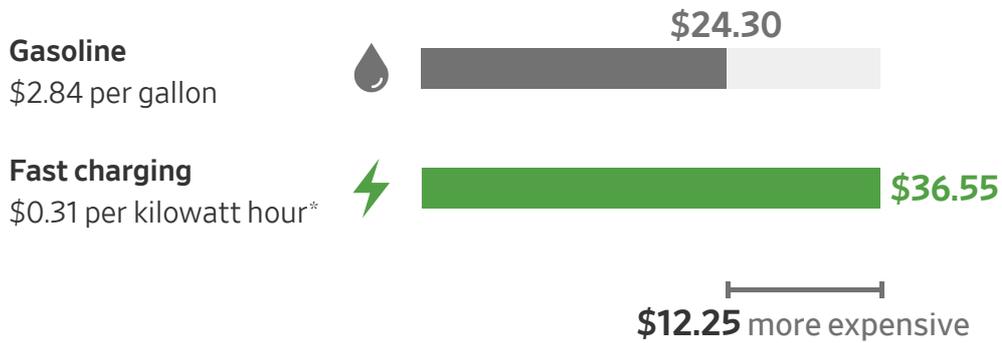
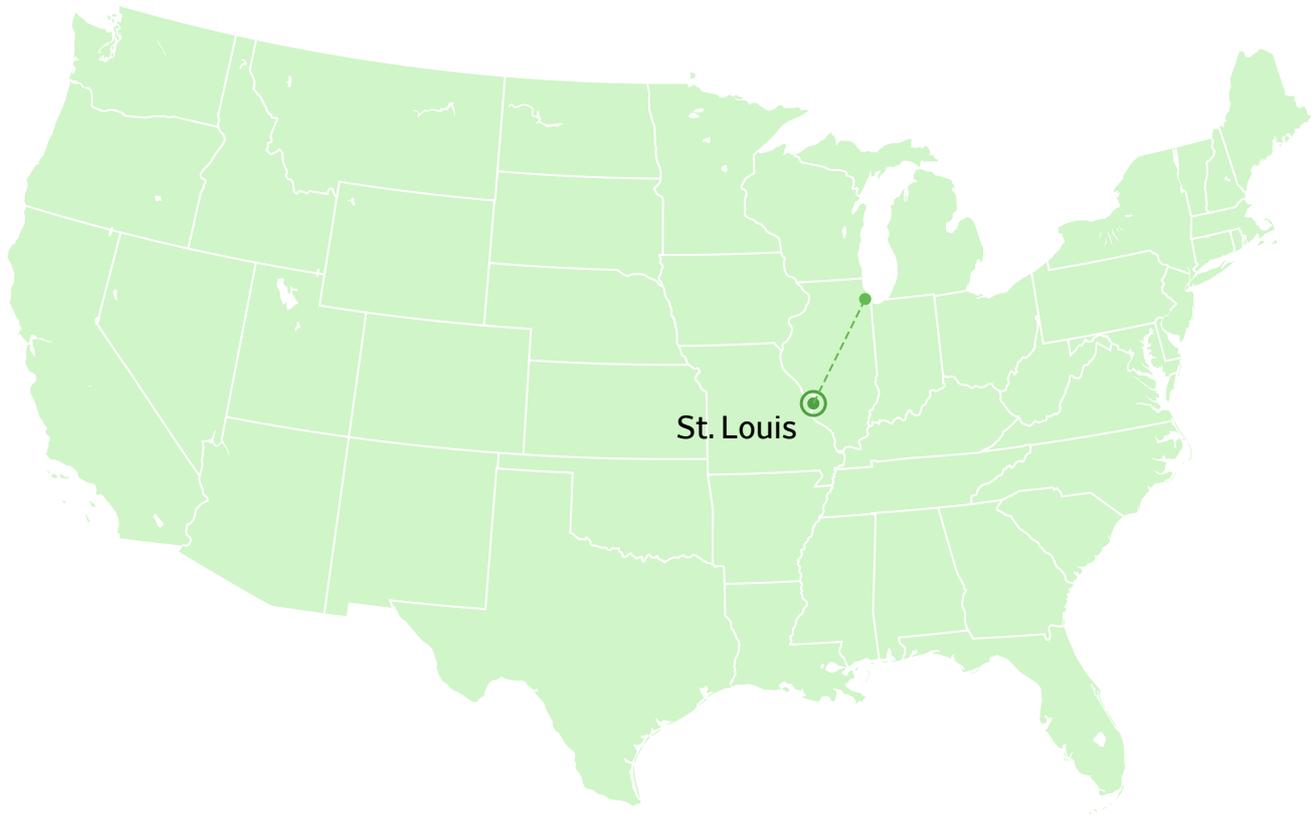
Here, too, incentives might cut costs. Los Angeles utility customers can get a \$500 rebate for the EV charger.



Let's take a road trip

EV drivers don't always benefit from cheap at-home charging. If paying for fast charges at a public station, EV savings largely vanish. We calculated the cost of a 300-mile road trip.

Cost of 300-mile road trip



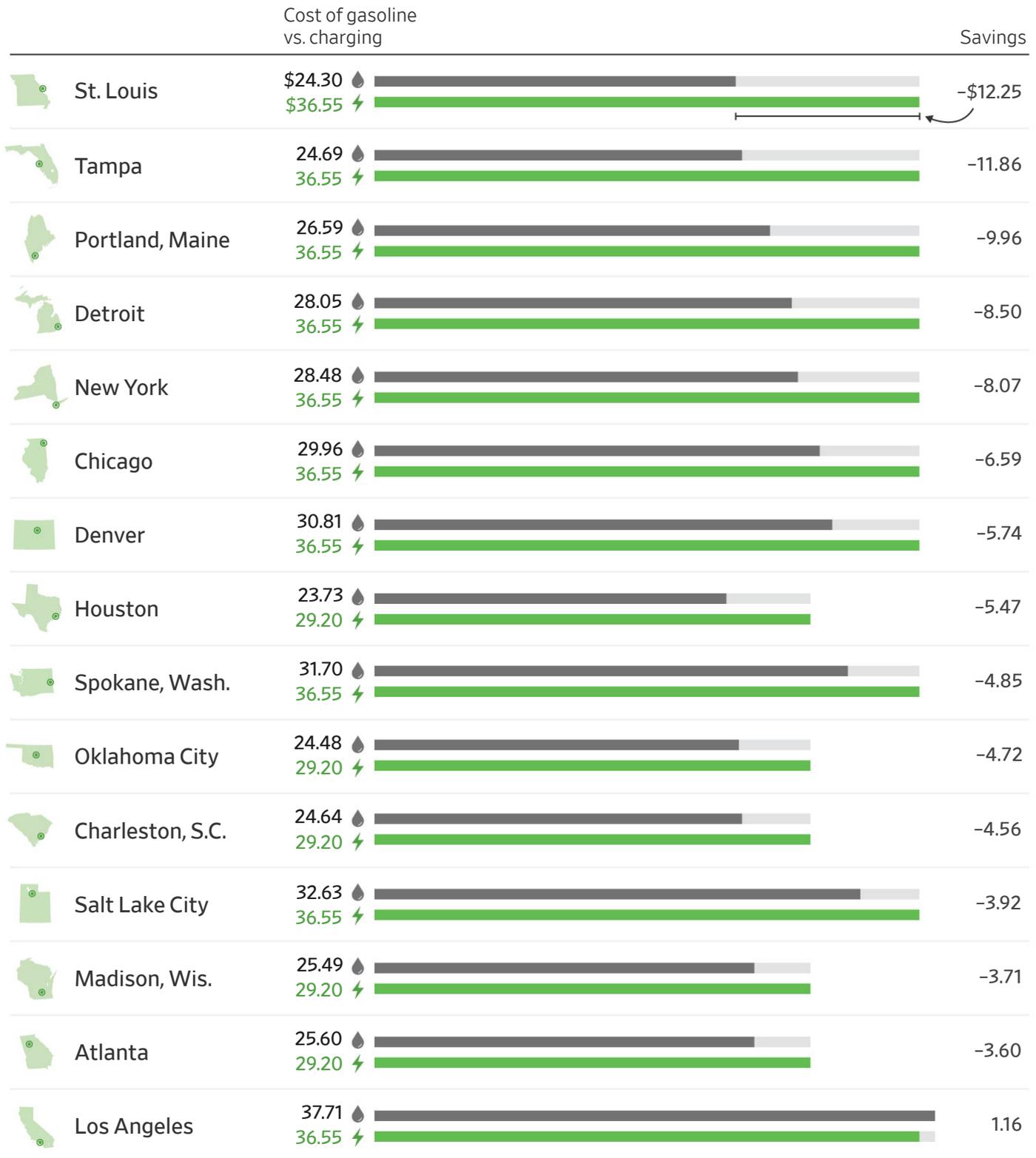
Say you need to recharge your battery in St. Louis for the 300-mile trip to Chicago. A Mach-E owner would end up paying \$12.25 more than a RAV4 owner for the trip.

In Los Angeles, where gasoline prices are among the highest in the country, the recharge for a 300-mile road trip is slightly lower for the EV compared to the gasoline-powered car.

In most cities, drivers spent about \$4 to \$12 more to travel 300 miles in the EV.

EVs are more expensive when you can't charge at home

Cost of 300-mile trip, gasoline vs. fast-charging stations, in selected cities.



Source: WSJ analysis

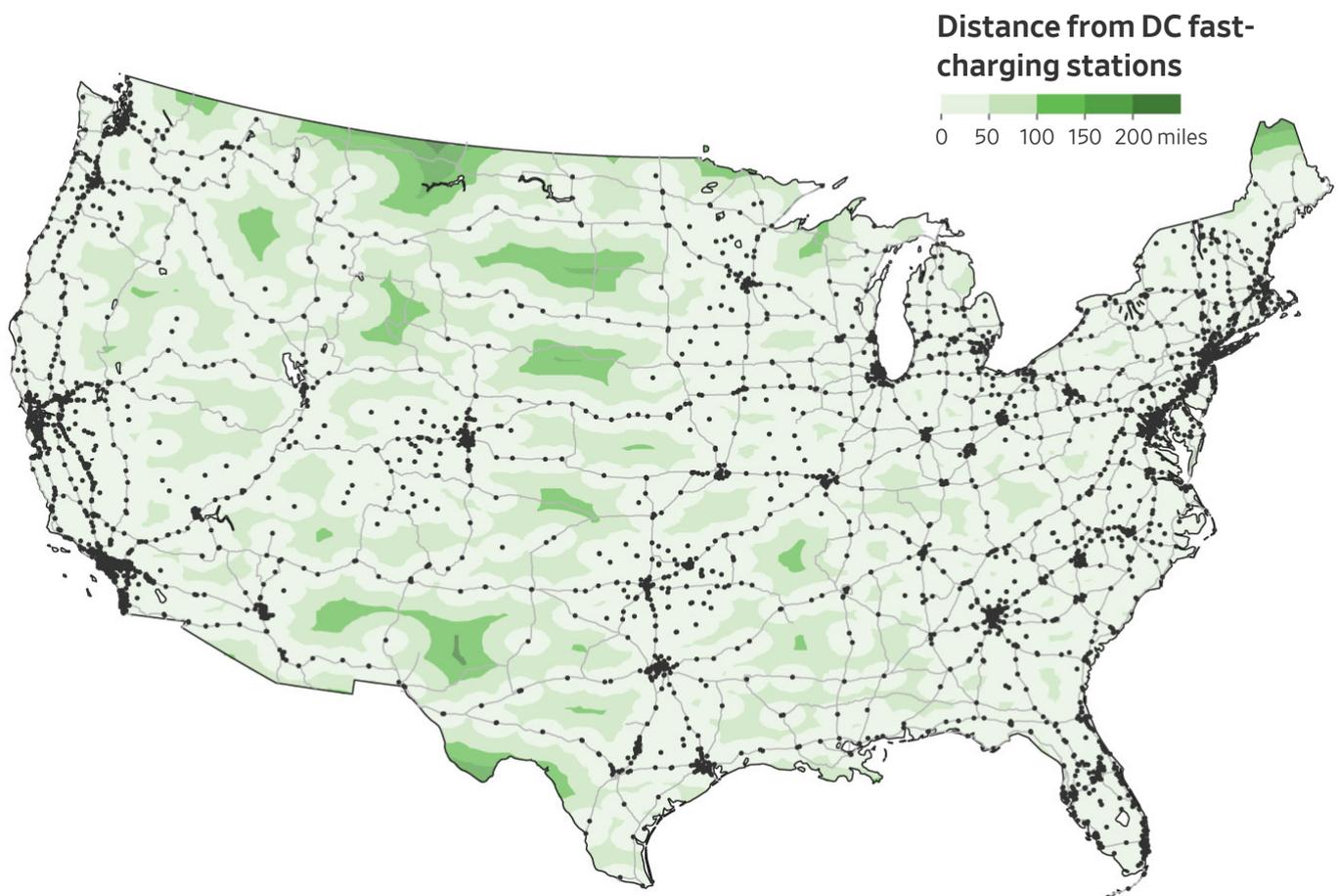
EV drivers often plan hotel stays and restaurant stops at places with charging stations, so some of the cost might be avoided.

We also take fewer road trips than we think: Less than about half of 1% of all drives are for more than 150 miles, and that applies to people in every city we considered, according to a Transportation Department study.

But Americans love the idea of the open road, and not everything is about dollars. There's also convenience and the fear of running out of juice.

Access to fast charging varies and the build-out of more stations will take time, even with a federal infusion of \$2.5 billion for highway charging. EV proponents say more fast-charging stations, which repower a battery in about 30 minutes, are a missing ingredient for wider EV adoption.

Tesla's proprietary network is a key factor that has helped the company dominate the U.S. market.



Source: U.S. Department of Energy



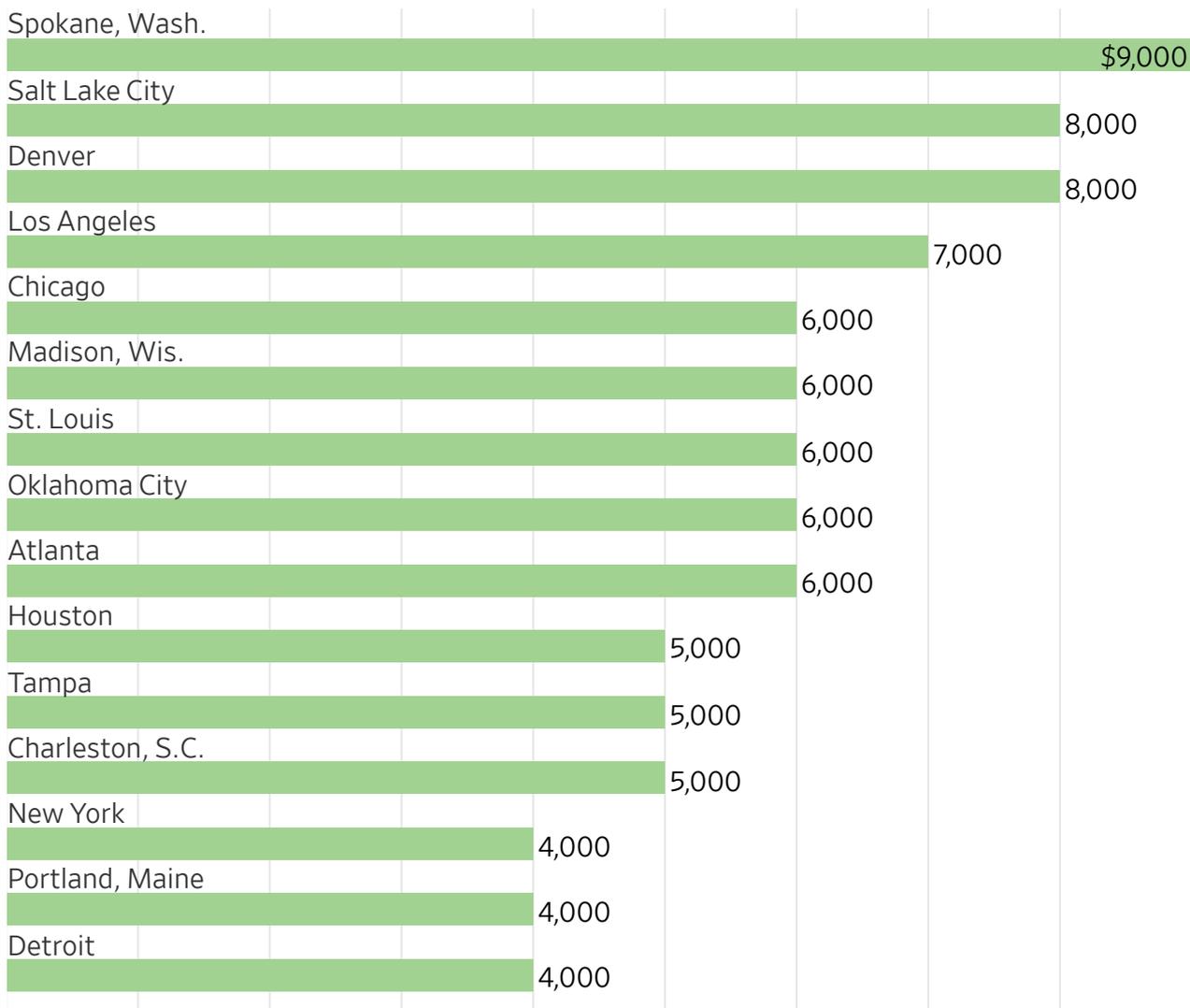
Will an EV pay off?

Over time, the average EV owner saves money because of lower fuel and maintenance, according to [a 2020 Consumer Reports study](#). It calculated that a Mach-E was slightly more costly in the first five years of ownership than the RAV4, but slightly cheaper over the lifetime of the vehicles.

In our look at fuel only, the driver of a Mach-E saves 4 cents to 9 cents per mile.

That means any payoff on cheaper fuel for EV owners would come twice as quickly or twice as slowly depending on your local price to pump gas or plug in.

Savings per 100,000 miles in different cities



Source: WSJ Analysis

Methodology and caveats

Average utility prices were provided by IHS Markit. Atlas Public Policy provided public-charging data. Average gasoline prices for each city are from AAA. Utility, charging and gasoline prices are from late August. Fuel-economy data came from the Environmental Protection Agency. We chose the 2021 Ford Mach-E Premium RWD, which has a price of \$53,100 before tax incentives.

Home charging can vary based on time of day in some utilities, and the cheapest prices are often overnight. IHS Markit provided an average cost for customers in each city.

The EPA national average per-mile costs for each vehicle falls broadly in line with our findings: Mach-E drivers save 6.4 cents in fuel costs each mile versus RAV4 drivers.

The fast charge included a \$4 monthly membership fee for Electrify America. Memberships can be canceled at any time, but taking longer trips or stopping for more fast charges in a month would lower per-mile costs. Some car makers offer free fast charging.

Hiring an electrician to install a charging station can cost \$500 to \$1,500, according to HomeAdvisor.com, but that doesn't include local permits needed or garage modifications.

Driving habits can make a big difference in efficiency, and are even more important for EV owners. Flooring it in an EV might be fun, but eats away at fuel-cost savings. Heating and cooling can also have a bigger impact on EV efficiency, according to IHS Markit.

Federal tax credits for some EVs would rise to \$12,500 if they are made in the U.S. by union labor with domestic materials, under a White House plan. (The Ford Mach-E is made in Mexico). A credit of up to \$2,000 would be available for some buyers of used EVs. Some states also offer credits or rebates for used EVs.

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