

E-bikes are affordable, practical and good for the planet. But is America ready for these speedy cycles?

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Credit: Pixabay/CC0 Public Domain

America has hosted its fair share of heavyweight transportation fights.

Canals gave way to freight trains. Freight trains gave way to big rigs.

Horses gave way to cars.

Now cars will give way to ... the [e-bike](#)?

In one corner are those who swear, "Yes." They'll tell you on a cost-per-mile equivalent, bicycles powered by [electric motors](#) can get thousands of miles to the gallon compared to a typical gas-powered car. E-bikes also efficiently transport a rider from point A to B with zero carbon emissions, similar to an electric car but at a fraction of the price. They are the future, proponents say. Just wait and see.

"For years I've been saying the e-bike is going to be as ubiquitous as the smartphone," said Mike Radenbaugh, founder and CEO of Rad Power Bikes, the largest U.S.-based e-bike company. "Everything we're doing is to create a true car replacement ... to help stoke this consumer revolution that's underway but has not hit the tipping point yet."

In the other corner are no shortage of detractors. Some cite safety; studies suggest higher rates of serious injury for e-bike riders. Others note [environmental concerns](#) about battery production and disposal. Perhaps most prominent are those who say e-bikes just don't fit in on American roadways, where their typical top speeds of about 20 mph can irritate slower pedal-powered bicyclists and faster car drivers alike.

"The e-bike is a monstrosity," declared an article in The Atlantic, a recent flashpoint in the battle over the e-bike.

So which is it: segue to the future, or another doomed Segway?

E-bike sales are soaring

In 2001, the two-wheeled, all-electric, self-balancing Segway launched. At the time, inventor Dean Kamen delivered an infamous prediction to Time magazine that the vehicle would "be to the car what the car was to the horse and buggy."

That never came to pass. By the time Segways fell out of production two years ago, just 140,000 units had been sold, Fast Company reported.

The e-bike has already vastly surpassed those figures. Buoyed by COVID-19 lockdowns and high gas prices, 880,000 e-bikes were imported into the United States in 2021 alone, according to the Light Electric Vehicle Association (LEVA), a trade group that promotes "micromobility" devices. Imports are expected to ease just slightly in 2022 to 750,000, meaning there will still be millions of the vehicles on U.S. roads and trails.

Ed Benjamin, founder and chairman of LEVA, believes the ceiling could be much higher. He's traveled the world as a professional in the e-bike space since the 1990s and has come to see them dominate the landscape in East Asian and European cities. He calculates there are more than 350 million in use worldwide.

"People ask me, 'Is (a transformation) ever going to happen?' and I kind of chuckle," Benjamin said. "It's been happening, but in the United States we're not used to it."

To Benjamin, the fact that populations worldwide are trending toward cities, including in the U.S., means that electric bikes, scooters, skateboards and similar devices aren't going anywhere. Even as some device-sharing experiments with e-scooters petered out in U.S. cities in recent years, overall sales are expected to continue to grow.

"Micromobility is a reality and it's becoming more of one. The need is

being established by billions of human beings moving into ever-denser cities. That's the underlying fact," he added.

In the U.S., transportation enthusiasts and climate change experts mostly champion the technology. Ari Matusiak, CEO of Rewiring America, a Washington, D.C.-based nonprofit promoting electrification of the energy and transportation sectors, sees e-bikes and similar technology as crucial to reducing carbon dioxide emissions and slowing climate change.

The country's transportation sector, still dominated by gas-powered cars, is the largest emitter of greenhouse gasses. The transition to electric cars and trucks will help lower emissions, but those vehicles are still relatively expensive and come with significant consumer reservations about where and how to charge.

The e-bike presents itself as a viable alternative because numerous studies show the majority of car trips in the U.S. are actually short drives. Matusiak's preferred statistic is that about 60% of daily commuters travel less than 6 miles per day.

Entry level e-bikes now come in at roughly \$1,000 and can be charged with a normal wall outlet. On the road, they can power themselves to speeds of 20 mph without requiring a license or running afoul of the law in most jurisdictions.

That's an enticing combination of attributes for people who want to skip the traffic jam in favor of a breezy ride. Given that most Americans are already familiar with how to operate a bicycle, the potential becomes clear.

"I think about it less as a replacement of the bicycle, and more as an alternative to the car," Matusiak said.

Potholes and pitfalls

Despite all the on-paper benefits, recent Facebook posts by REI, a multibillion-dollar outdoor goods retailer with progressive corporate stances, show e-bike polarization can occur even among receptive audiences.

The company supports a federal E-BIKE Act, which would shave 30% off the cost of an e-bike for American consumers, says Taldi Harrison, REI's head of government affairs. REI and other advocates hoped the measure would be rolled into the Inflation Reduction Act passed this year, but it was left on the cutting room floor. A push to pass it independently has drawn more than 36,000 messages of support from REI's Cooperative Action Network, the most of any campaign to date, Taldi told U.S. TODAY.

But REI's social media campaign promoting e-bikes has also drawn a cacophony of criticisms. On one post, commenters alternatively derided e-bike users as lazy, offered that the bikes are often charged on electric grids still powered by fossil fuels, and expressed concern about e-bike users commandeering bike lanes and trails.

Such concerns, along with cost and safety, form a revolving milieu of critiques, some thornier than others.

Advocates counter that the electric-powered propulsion of e-bikes makes them much more accessible to the general public. They encourage more regular use than a traditional bicycle, a 2020 study in the Journal of Transport & Health found. That's particularly true for people with disabilities.

Climate hawks also note that e-bike batteries are a fraction of the size of those used in electric cars, and their carbon footprints are significantly

smaller than EVs and gas-powered cars alike. Battery disposal concerns have grown along with sales, but manufacturers say they've responded by participating in an industry-wide recycling program launched this year.

Perhaps the most poignant question is whether e-bikes and similar devices can be safely integrated into the nation's transportation system. E-bike safety statistics are not yet comprehensive, but so far suggest that e-bikes are more dangerous than their fully pedal-powered forebears.

A Dutch study this year found that e-bike riders are 1.6 times more likely to end up in the emergency room than traditional bicyclists, even in a country with robust biking infrastructure. Another report released last month by the U.S. Consumer Product Safety Commission found that between 2017 to 2021, injuries from the use of e-bikes, scooters, and similar devices "spiked 127 percent to 77,200," while deaths rose from 5 to 48.

The [lithium-ion batteries](#) used in many e-bikes are also liable to catch fire under certain conditions.

"In light of the spike in injuries, CPSC reminds consumers to use caution and safety with these devices," the commission warned.

Even some who conceptually support micromobility vehicles say the rapid growth in e-bike and scooter use is causing friction on roadways and trails not originally designed for them.

"E-bikes don't belong anywhere in particular on American infrastructure, which makes them both more frustrating, more dangerous, and more annoying than they otherwise could be," Aaron Gordon, a VICE journalist and New York City bicyclist, wrote in September.

Louie Castoria, a San Francisco-based professional liability attorney,

adds the problem is compounded by questions over classification and insurance.

"There's no uniformity among the states or municipalities about how we should treat e-bikes. For example, there's no mandatory liability insurance you have to have coverage for," Castoria said, adding that he urges e-bike owners to consult with their home and auto insurers to nail down what would be covered in the event of an accident or theft.

Culture the greatest challenge?

Tied to the safety question is that of culture and infrastructure. Biking in many U.S. locales is already dangerous compared to European and Asian cities due to a lack of bike-friendly transit options, such as bike lanes protected by curbs or parked cars. After spending decades just to obtain a modicum of these protections in U.S. cities, many traditional cyclists find it hard to imagine quickly finding enough space to accommodate both traditional and [electric bikes](#).

"Until then, the lack of adequate infrastructure to accommodate what ought to be a game-changing mobility device will not only make it harder to adopt it, but may discourage people from enjoying the humble bicycle, too," Gordon concluded.

Many supporters primarily frame these challenges as either solvable or growing pains outweighed by the greater dangers of cars and benefits of e-bikes. Radenbaugh points out that 36 states have adopted model e-bike legislation, adding uniformity to regulation.

While he acknowledges safety concerns and says he also wants to see American cities adopt better infrastructure, Radenbaugh points out there are already more than 40,000 roadway deaths in the car-dominated U.S. each year, a per capita rate far higher than e-bike happy countries like

Germany and the Netherlands.

"(Cars) with 500, 600-plus horsepower and unlimited top speeds that weigh 5,000 pounds are allowed to exist," Radenbaugh said. "If anything needs more regulation it's the automobile industry."

Such statistics-based arguments are one thing. But William Telegadis, founder of Electrified Rides, an e-bike retailer based in Rehoboth Beach, Delaware, says the devices themselves offer perhaps the most compelling attribute. And it's the same one that originally made the car king: Freedom of mobility.

When Telegadis first opened an e-bike consulting business in Pennsylvania in 2016, many customers were driven by recreation or physical rehabilitation. But he's always believed e-bikes could transform the daily commute, and says the majority of customers now see it, too. A typical first question: Which model has enough battery power to cover a trip to work and back?

The test drive usually takes care of the rest, he says.

"They come to us. They're sitting in traffic, there's no parking where they go, they're miserable in the car," Telegadis said. "They get on a bike, they ride it ... and that's the epiphany."

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