

[Subscribe](#)[Past Issues](#)[Translate ▼](#)[RSS](#)[View this email in your browser](#)

Advanced Fuels and Transportation

Spring 2019 |Spotlight: E-Bikes



With tires, gears, chains, disk brakes, and a sturdy frame, electric bikes (e-bikes) are deceptively similar to standard bicycles. Sourcing power from a small electric motor located in the gear hub, an e-bike rider will reach 20 mph with ease. E-bikes are reaching new heights in the US bicycle market, and Humboldt County is catching on to the speedy trend. To get a glimpse of e-bike adoption in our local community, we recently interviewed a local e-bike owner, Jerome, and a vendor, Chris.

Jerome Carman is a Senior Research Engineer at Shatz Energy Resource Center at Humboldt State University. He works on clean energy projects and manages SERC's transportation programs. Jerome lives in Eureka and commutes to work in Arcata, but not usually on his e-bike, because the Bay Trail is not yet complete. Jerome purchased his e-bike in 2015 at a company in Ashland, Oregon, before there was a local e-bike market. He has put 3000 miles on his utility "long tail" heavy frame that can hold up to 500 lbs, and is built for hauling materials. Jerome's bike is excellent for running errands and can casually carry 70+ pound bags strapped to the cage while biking up Humboldt's notorious hills.



What is an electric bike (e-bike)?

Electric bikes receive assistance from an electrical motor that needs to be charged. Electric bikes reach a full charge in two and a half hours and take you as far as 30 to 100 miles, depending on battery size and rider. With the extra power, a rider casually reaches 20 mph, but with certain models you can reach up to 29 mph. The common mechanisms to deliver power are pedal assist and standard hand throttle.

E-bikes are divided into three classes, determined by maximum speed and assistance mechanism. E-bike classes determine city transportation policies and restrictions for where the bicycle can ride.

Class 1 e-bikes have an electric pedal assist that will aid you to a maximum speed of 30 mph. They are allowed anywhere you ride a standard bicycle - bike trails, bike paths, and bike lanes.

Class 2 e-bikes are *not* pedal assisted and receive motorized help up to 20 mph from a throttle. Class 2 bikes are only allowed on bike paths and lanes (no bike trails).

Class 3 e-bikes offer the pedal-assist feature and have a max speed of 28 mph. Any e-bike with a max speed over 20 mph is considered a



Tim (center) is a member of RCEA's ZEV Enthusiast group, and purchased his e-bike in Portland for \$750. Tim is passionate about increasing the accessibility of e-bikes as a lower-cost, clean transportation option.

Why ride an e-bike?

From errands to commuting, and mountain biking to road racing, there is an e-bike for every purpose. "I love riding my e-bike," Jerome says, "I can haul a lot of stuff easily and do long commutes without having to change into exercise clothes...with e-bikes you still get a work out, but don't have to worry about working up a serious sweat before a long day at work." Most of the time, Jerome uses his bike for errands, as carrying a heavy load is relieved by the electrical assistance. The ability to strap over 50 pounds of bags to an e-bike makes it a realistic alternative to a car.

E-bike vendor Chris' take? "A lot of folks who walk in here aren't that enchanted with e-bikes at first, but once they try it for the first time, they get hooked. He continues, "There are a lot of people who really want to ride but are not in shape to ride a standard bike, especially for mountain biking." Chris has seen people buy e-bikes and then have impressive physical gains because they have the confidence to ride longer distances. E-bikes do not restrict you like a standard bicycle does; the pedal assist relieves you of some of the hard work a bicycle requires of you.

"E- bikes open up a big door for a lot of people. You are still getting exercise-you just get to go faster with the same effort.

[Subscribe](#)[Past Issues](#)[Translate ▼](#)[RSS](#)

E-bikes continue to evolve with more offerings in a broader price range. Here's one view on the economics of an e-bike, but double check the numbers periodically as you explore options.

As of 2019 the cost of an e-bike can range from about \$1,500 to over \$9,000. There are solid offerings for about \$3,000 or less so we'll use that as a mid-range target in this discussion. Let's also focus on a commute and calculate the return on investment to see how long it takes for an e-bike to pay for itself by replacing miles typically done in a vehicle. To avoid doing your own calculations, look for an online calculator like [this one](#) from Winchester Bikes in San Jose, CA.

- Estimate the monthly cost to drive your car: The general idea is to estimate the number of monthly commute days, the distance travelled each way, ancillary costs such as parking and tolls, and the average vehicle cost per mile. That last number is tricky unless you diligently track your expenses, but a good rough guideline is the Internal Revenue Service "standard mileage rate for the use of a car." As of January 2019, the IRS rate is 58 cents per mile.
- Next, figure out how much of your commute will be offset with your e-bike: how many days you are likely to ride each month, cost of the e-bike, and the cost of accessories such as helmets, clothing, and carrying bags.

Example: Let's look at a 7.6 mile commute from the Arcata Plaza to the Eureka Courthouse in a typical internal-combustion car driving 22 days/month, with no parking or tolls, at an average vehicle cost of \$.58/mile. The driver purchases an e-bike and accessories for \$3,400 and plans to commute on it 8 days/month. In this example, it takes about 48 months, or 4 years, for the e-bike to pay for itself.

Paying for your ride

Local e-bike vendors have financing options to ease the higher purchase price of an e-bike, and traditional lenders have a variety of offerings. Small loans can carry a hefty interest rate, though, so also consider lower-priced or older models, and used e-bikes.

At this time, there are no rebates to help reduce the cost of e-bikes, although there is an [online petition](#) urging state agencies to create a rebate. The Redwood Coast Energy Authority is starting to evaluate options for a local e-bike rebate so check our [website](#) periodically or call our transportation team.

Social benefits

According to Jerome, "E-bikes accelerate the realization of a bike share society. Due to the hills and accessibility to climb hills, normal bikes exclude people that are not fit or have difficulty riding standard bikes, where an electric bike would help include those people. They are great for errands, especially a long-tail sturdy bike because you can get four large grocery bags, and strap additional things to it with the cage-like frame. You can easily haul kids in a trailer." Jerome states there isn't really a learning curve with an e-bike, it's just as easy to ride as a regular bike.

How do I get one?

Current year models are just appearing on the local market. E-bikes take the same amount of time to assemble as a standard bike, roughly 1-1/2 hours. You can convert your standard bike frame with pre-assembled electronic parts. The only thing that really differs on an e-bike is, along with the extra weight, the fact that your bike will need to charge. You can even personalize your e-bike with a large selection of tire type, racks, fenders, light systems...pretty much anything you can customize on a standard bike.



[Subscribe](#)[Past Issues](#)[Translate ▼](#)[RSS](#)

Once the Humboldt Bay Trail is complete, options will open up even more. "I have ridden my bike in downpouring rain and through deep puddles with no problems. It comes down to how well the manufacturer weatherproofed your components" Says Jerome. It loses battery efficiency on cold days, when the battery cannot deliver the maximum amperage. There is no corrosion due to the salt water, air or moisture, and his steel frame has held up well. At the end of the day, e-bikes are all about taking control of the way you get around. They offer great flexibility to get in a workout, haul heavy loads, and cruise trails- all with ease.

Join RCEA on Sunday, April 28, from 8:00 am to Noon at Bayside Community Hall. Learn more about e-bikes, including local customizing and solar charging options, and ELF bikes. Talk with experienced owners in our community and check out other methods of alternative transportation.

[Subscribe](#)[Past Issues](#)[Translate ▼](#)[RSS](#)

Bayside Community Hall



BREAKFAST IN BAYSIDE


Alternative Transportation Show

Sunday, April 28 8am - Noon


Learn all about energy-efficient travel options

On display: ELECTRIC vehicles, bikes, scooters, pedi-cabs and more!

Live music and a yummy breakfast



2297 Jacoby Creek Rd
(Immediately before the Hall on the right)
baysidecommunityhall.org
RCEA (707) 269-1700
2019



[Subscribe](#)[Past Issues](#)[Translate ▼](#)[RSS](#)

Redwood Coast Energy Authority
633 3rd Street
Eureka, Ca 95501
(707)269-1700
redwoodenergy.org

Copyright © 2019 Redwood Coast Energy Authority, All rights reserved.

Want to change how you receive these emails?
You can [update your preferences](#) or [unsubscribe from this list](#).