

A QUICK



&



DIRTY

Guide To Buying An E-Bike

Introduction

When I first got curious about e-bikes, my first stop was a local bike shop. Generally, that's a smart move, because you can get a better bike assembled by skilled people. More importantly, you have them there to help if things go wrong! But, on the other hand, the higher standards bike shops have mean that the bottom end of the market doesn't really get served. I honestly can't blame them for not wanting to stake their reputation on junk, though.

Sadly, the higher prices kept me out of the game.

Now, a decade after expensive e-bikes started showing up at local bike shops, the whole landscape has changed. Not only have many non-local companies started offering better quality bikes, but local bike shop prices have come down, too. The price of batteries has come down, and intense international competition has led to some serious price drops, too.

In this new world of affordable e-bikes, it can be a little confusing, though. So, I wanted to write a quick guide to e-bikes that can help people shopping at different price points navigate the process and get the right bike for them!

01 What's An E-Bike, & Why Do I Want One?

p. 4

02 What Kind Of E-Bike Should You Get?

p. 5

03 The High End Of The Market Isn't For Everyone, But It Might Be For You

p. 9

04 Most Riders Can Be Perfectly Happy In The \$1,000–2,000 Range

p. 11

05 The Very Bottom End Of The Market Should Probably Be Avoided

p. 14

06 Battery Fire Concerns?

p. 15



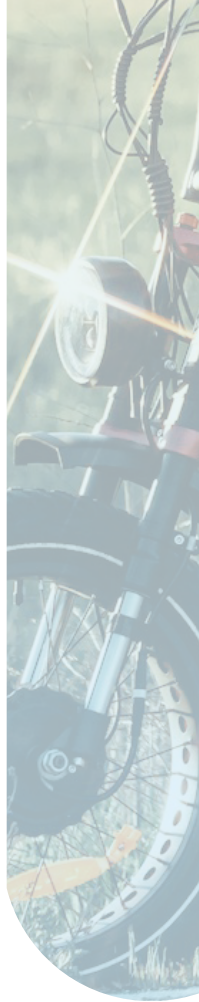
01 What's An E-Bike, & Why Do I Want One?

Not everyone is familiar with electric bikes and their benefits. So, before I get into what you should look at, let's talk first about why most people should be considering picking an e-bike up to begin with.

In short, an e-bike is a bicycle that has an electric motor to help you do things like go faster, maintain speed, and climb hills. Most models have an adjustable "pedal assist" mode, where you can tell the bike how much help you'd like. With maximum assist, you can ride almost effortlessly and do things like commute to work without getting all sweaty. Many bikes also have a throttle on the handlebar that allows you to ride without pedaling at all.

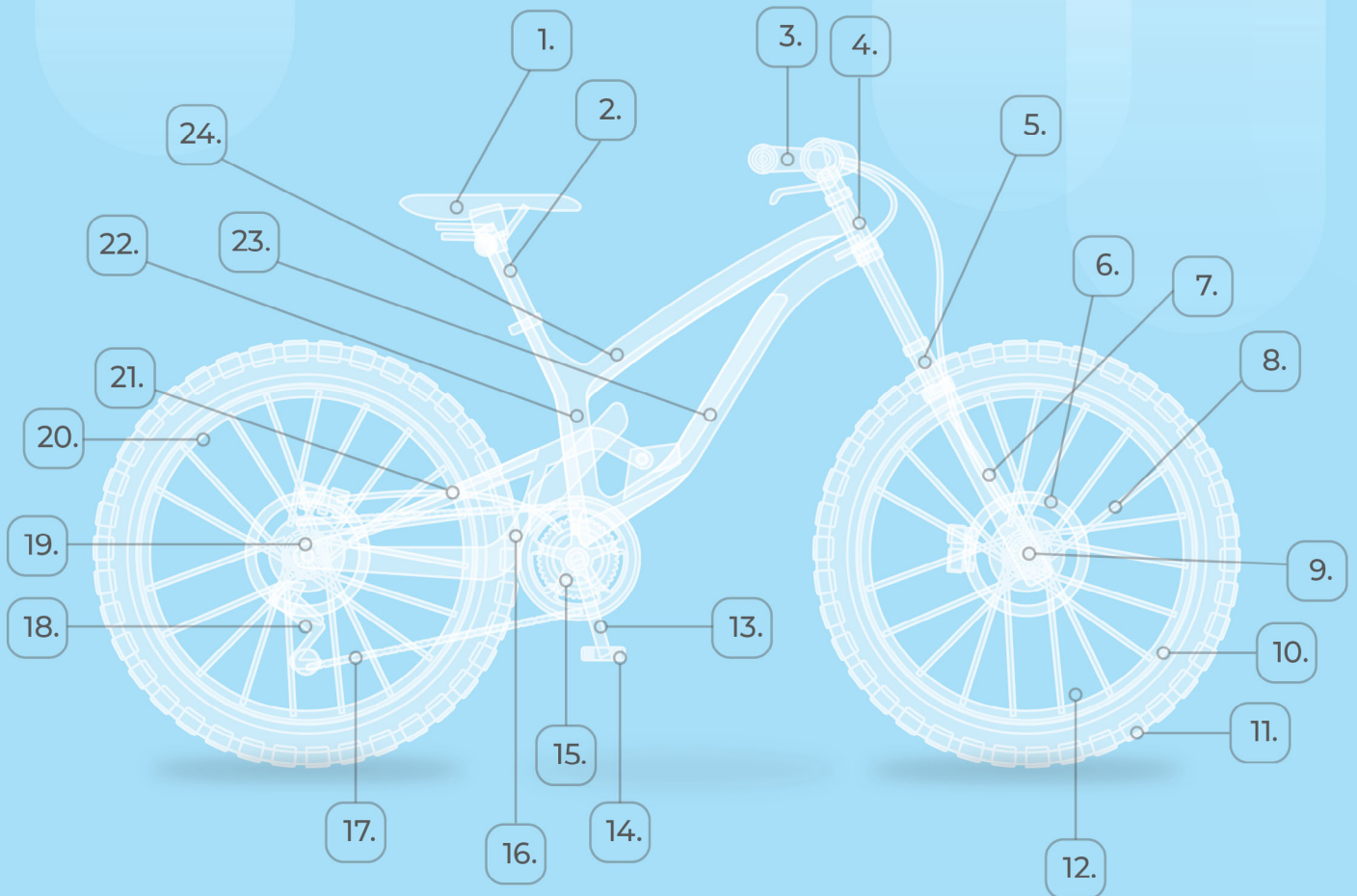


But, if you want to get some more exercise and get sweaty on the way home from work, you can turn the assist down or even off completely to get some exercise, making e-bikes a great exercise option. For pure exercise and not commuter use, it's great to be able to ride until you're totally pooped and then use the assist or throttle to get home. For this reason, many people counter-intuitively get better and more exercise with an e-bike than a normal bike!



Finally, e-bikes give you nearly all of the other benefits of bike riding. Being able to zip through the urban maze on the way to work, avoiding traffic and frustration can be great. You don't need to pay for a parking space in larger cities with an e-bike. They're also a lot more environmentally friendly than an electric car, as they don't have big hunks of steel and battery cells that took carbon-intensive manufacturing, nor do they shed much rubber or make much noise.





Saddle area

- 1. saddle
- 2. seat post

Front set

- 3. handlebar grip
- 4. head tube
- 5. shock absorber
- 6. front brakes
- 7. fork

Wheel

- 8. spokes
- 9. hub
- 10. rim
- 11. tire
- 12. valve stem

Drive set

- 13. crank arm
- 14. pedal
- 15. chainrings / crankset
- 16. front derailleur
- 17. chain
- 18. rear derailleur
- 19. cogset
- 20. rear brakes

Frame

- 21. chain stay
- 22. seat tube
- 23. down tube
- 24. top tube

With the basics out of the way, let's get into shopping for one!

02 What Kind Of E-Bike Should You Get?

Like anything in life, it's always a good idea to have the right tool for the job. Just like the bicycle market, there are a broad variety of bikes you can buy that fit different wants and needs.

The first question you need to ask yourself is what you imagine doing with the bike. Are you going to be riding to work on it? Delivering stuff to people? Challenging yourself on mountain trails? Riding on paved paths for fun and exercise? Some mix of the above? Buying a bike meant for riding on rough trails might not be great for cargo delivery or taking kids to school, for example.



So, if you're:

- **Commuting?** Get a Dutch-style commuter bike for excellent reliability and low maintenance.
- **Delivering?** Get a cargo bike or even a cargo trike if you're carrying large things.
- **Going off road?** Get a decent electric mountain bike. Cheaper bikes that look like mountain bikes tend to break on serious trails
- **Riding on tame gravel or concrete paths?** Consider a cheaper general purpose bike, including the ubiquitous fat-tire bikes.
- **Taking kids along?** Look at family bikes, including cargo bikes. Some of them have extra seats for kids ready to go.
- **Exercising?** Pick any of the above that work well for other uses you might have .
- **Have a need for speed?** Consider high-end electric dirtbikes or motorcycles, but be sure to comply with all laws.
- **Carrying a bike as luggage?** Look into the various folding e-bikes out there.

Once you have an idea of what kind of bike you're interested in, you'll need to look at your budget, but that's a topic that will require several article sections!

03

The High End Of The Market Isn't For Everyone, But It Might Be For You

The truth is that you can spend as much as you want on an e-bike. Some bikes cost as much as a used car, and a few cost as much as a low-end new one! There are diminishing returns at the very top of the market, where you spend and spend without getting much more for your money. The extra tiny bit of capability in that case is for professional riders and racers who know how to get that last ounce of performance out, but the average person will never approach any need for that.

That having been said, the lower part of the high-end market, which I'll define as being in the ballpark of \$3,000–5,000, is a good fit for some non-professional riders. High-quality road bikes provide day-in and day-out reliability and quality for people using the bike for their main transportation in the urban jungle. When you're depending on the bike for your livelihood, it often makes sense to go for something with bulletproof reliability and widespread service locations.

The same can be true for mountain bikes. If you're like me and you do low-speed exploring on an e-bike, it doesn't make a lot of sense to spend \$5,000. But, if you're the kind of rider doing jumps, taking on insane rock gardens, and otherwise testing the limits of what a bike can do, it makes sense to get something that can take extreme abuse.

Another kind of e-bike in this price segment is what people are calling “Class 4” or fast e-bikes. In many places, they’re technically not legal to ride because they’re basically an electric motorcycle in everything but top speed. Some models do not have pedals, so in some states they aren’t considered bicycles at all and require registration, motorcycle endorsement on a driver’s license, etc. to ride on the street. If you have a need for speed and want to go ride where the ATVs and UTVs ride, models like the Sur Ron can be a good option.



04

Most Riders Can Be Perfectly Happy In The \$1,000–2,000 Range

As I said in the last paragraph, some of us are quite serious about riding, and have the money to spend for either a lot of speed or top-notch quality. If you're more like me and don't have the budget for a \$3,000+ bike, or just don't see the point in spending that kind of money, there are still some really good options, and we've reviewed quite a few of them.



One model my colleague Kyle Field enjoyed testing recently was the Lectric X-Peak. It's very reasonably priced at \$1,399 and comes with hundreds of dollars worth of accessories. Fat tire e-bikes like this one have been very popular in recent years, not only because they look neat, but because they provide a comfortable ride through everything from sand to gravel to the streets. They're a real blast to ride, as long as you do something to avoid problems with puncture vine, aka "goat heads."

There are many other brands operating in this space. Some provide far better customer service than others. CleanTechnica has tested many of them, including popular brands like Lectric, Mooncool, Rad Power Bikes, HiPeak, Luckeeep, and Snapcycle. You can find our reviews here.



Another kind of bike I really enjoy are mid-fat tire bikes. Instead of having skinnier 2” tires like most mountain bikes or big 4” fat tires like many popular ones, going in the 3” range gives you a good mix of comfort, efficiency, and sand handling.



My Snapcycle Stinger e-bike next to a fat-tire Pegasus model. Image by Jennifer Sensiba.

The most important thing you want to check on before pulling the trigger on an e-bike in this price range is that it has domestic support. To be honest, most of the parts come from China and some of them are even assembled in China. They’re still often of high quality for the price and work very well, but when things do go wrong, you’ll want someone in your own country to call and get replacement parts or support from.

Overall, there’s now an enormous range of e-bikes in this \$1,000–2,000 “sweet spot” value-for-money price range. It’s a much different market than a decade ago, or even a few years ago. Lower and lower battery prices have enabled an explosion in e-bike models, particularly in this more affordable \$1,000–2,000 class.

05

The Very Bottom End Of The Market Should Probably Be Avoided

Like any market, there are some really, really cheap e-bikes you can get. Sadly, anything below about \$800 (excluding special sales that take \$800 bikes lower) isn't going to be of great quality. Small motors, poor quality parts, no disc brakes, and finicky power electronics that won't give you a smooth ride are all common in cheap e-bikes. For people on a really low budget, these might be a good answer, but at the same time, you aren't going to get a good e-bike experience on these bikes like you would spending just a little more.

Personally, I wouldn't buy anything with an electric motor that doesn't have disc brakes at a minimum, even if they're cable actuated (hydraulic disc brakes are better). With an electric motor supporting you, it's easy to get going pretty fast, and you need the ability to slow back down in a hurry for safety. Rubber rim brakes just aren't going to give you the stopping power you should have.

So, I'd recommend staying away from the bottom of the market unless you absolutely can't afford something nicer. For comfort and safety, I wouldn't feel good about recommending anything in that price range to anybody.



Battery Fire Concerns?

One thing that has caught a bit of attention is e-bike fire risks. The concern about this is certainly overhyped, but that's not to say there's no risk. There are thousands of e-bike companies out there, and some of them may cut corners or include low-quality products. Again, see the section above. However, top e-bike manufacturers are certainly taking many steps to ensure their bikes are safe, and they are also complying with new laws on this topic, most notably one passed in New York recently.

Lectric is the sponsor of this guide, but it's also been a leader on this topic (one reason of many we've been happy to partner with the company). Here's a recent statement from the company's CEO, Levi Conlow, on the matter:



As a leader in the e-Bike industry, we have a responsibility to provide our customers with the safest and highest quality eBikes in the country. Our commitment to safety includes features like hydraulic brakes and certification to UL standards on all Lectric eBikes. Anyone shopping for an ebike should always check to make sure the bikes are meeting the highest safety standards.





We recommend that all ebikes are certified to the UL standards 2271, which covers ebike batteries, and 2849, which addresses the safety of the entire electrical system, including battery packs and battery management systems.



Indeed! To make sure you're buying the safest e-bikes possible, check if the bike is UL 2849 certified. This is the key, and should assuage concerns about battery fire risk, or other equipment safety risks for that matter.



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