

ELECTRIC BIKES BUYERS GUIDE



BIKES & BEYOND

WHERE TO START

What are YOU looking for?



So you're looking to get an e-bike, that's awesome! This guide is to help you break down the vast number of options available. Electric bikes are filling streets and trails across New Zealand as people switch to electric power, but with so many options, it can be difficult to know **where to start**.

After reading this guide, you might have an idea of what your perfect electric bike could be, but the best bike for you is the one you are most comfortable on, so try as many bikes as you can.

This perfect bike is your unicorn bike, but as we all know, unicorns are not easy to find, so as a rider you may have to compromise in some areas, but remember that you can easily change the handlebars, tires and attach rack or fender. This guide will mainly talk about function rather than design.

WHAT'S GONNA BE YOUR PERFECT FIT

So now comes the tricky part, how to figure out what you need or want on your new electric bike. The first question you should ask yourself is what riding position do you prefer or how is it most comfortable for you to get on the bike? This will decide the shape of your ideal frame.

Step through or Top bar



Pros

- Generally, a more upright riding position
- Easy to mount and dismount from the bike, it is very useful in heavy stop-start traffic.
- It can be fitted with all clothes, even with long and flowing skirts because that's where the design originated.

Cons

- It's mostly not suitable for complex off-road driving, although the new ones will surprise you with what they can do.
- You may need an adapter for your current bike rack (but they're only \$ 60), newer e-bike specific bike racks will work.

Pros

- Better for technical riding for mountain biking or a lower position for aerodynamics
- A wider range of bike styles available

Cons

- It can be more difficult to mount and dismount for cyclists with less mobility.

Once you've chosen your frame style, you may need to lower it further with the riding position as the diagram shows that you can lean forward or be fully upright and this is whichever is most comfortable for you. A steeper riding position is better suited for fast, technical riding, while a more upright position will relieve your lower back and arms for a longer ride. Most bikes can be modified to have a slightly different riding position, but they cannot be completely changed.



Another key question when choosing a bicycle is what is its purpose for you?

There are 3 big rider categories and don't worry if you fit into more than one, many of the bikes do too.

- **Regular commuter (mainly on-road riding and regular use)**
- **Weekend cruiser (a little off-road and off-road driving)**
- **Technical off-road rider (mostly off-road with more technical aspects)**



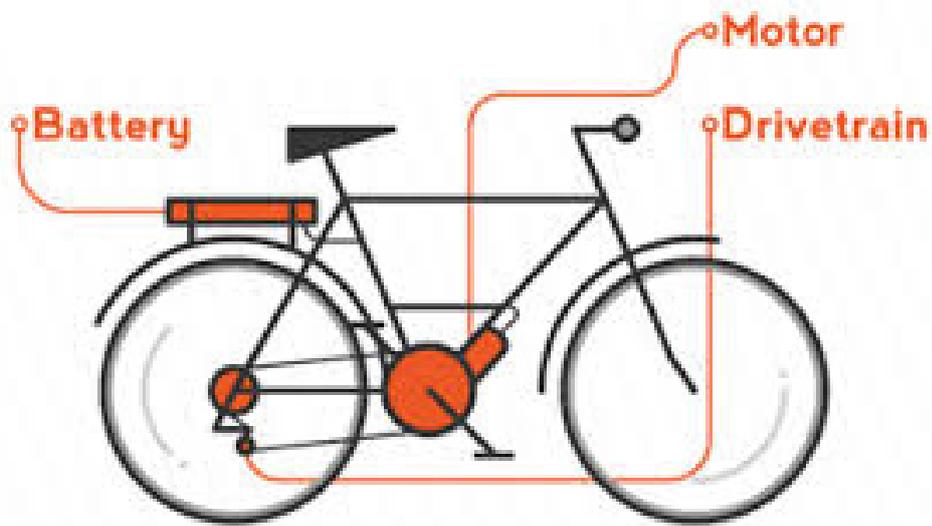
If you think you don't fit into any of these categories that's fine too, riding an electric bike is for everyone, this is just a guide.

The next thing is to **consider your price range**, a good electric bike will cost you more, but there are still some great budget options. It is rare to find an electric bike that we recommend under \$ 2000 as below that price the quality of the parts used tends to make it unsafe, some really cheap bikes will run on lower quality brakes that will not be able to stop the power of the bike.

Remember that just because a bike looks like a steel bike doesn't mean it is, there can be a lot more show than bikes on the e-bike market as all bike manufacturers try to cut the prices of their budget options .

When buying an electric bike, **try to invest a little more to make it last longer** and ride better. We promise that a good electric bike is worth investing in.

BIKE BREAKDOWN



Motors

E-bike motors are complex electrical systems, but we can break them down into three important specifications: **position**, **power**, and **torque**. Newer electric bikes should have a motor on the rear wheel (hub-drive) or in the middle of the transmission, where the motor is on the crank pedals (in the middle of the transmission).

Generally, **mid-drive engines are nicer and have higher torque**. All the power from the drive motor going through the gear set increases efficiency. Mid-drive motors will measure the force of your pedaling (torque sensing) and then add the amount of assist which is what makes them feel so smooth. And less intrusive on your power supply.

Rear-wheel drive motors are a simpler technology and therefore a good choice for entry-level bikes and newer rear-wheel drive bikes will be torque sensing as well. Different motors will make an electric bike feel different to ride, so be sure to try both to see what you prefer.

Motor power is given in watts, most motors will be 250-350 watts depending on brand and source. No Bosch or Shimano motor will exceed 250 watts due to EU legislation; Instead, these brands focus on increasing torque to increase speed and endurance when climbing slopes.

The torque of the motor is most important to the climbing ability of your e-bike, this is measured in newton meters and it is basically the pushing force that the motor has. This is such an important number when distinguishing between different mid-drive engines, for example, Shimano has different models for the mid-drive, among the engines with the biggest difference an additional 20nm torque, which makes it better on climbs, the best medium. Drive motors tend to have more torque without losing assistance smoothness.

Try and stick to these motor brands

- Bosch
- Shimano
- Dapu
- Bafang



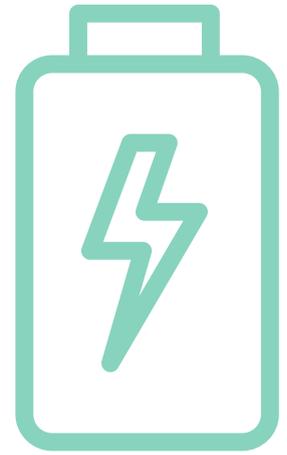
Mid-drive motor technology is relatively new and each brand takes a different approach to key parts. Some brands like Dapu have focused more on speed and raw torque, while Bosch, for example, has focused on the smoothness and driving feel of the engine. These differences slightly change the riding experience of the bike.

Often we talk about the different motors as different tiers, your top tier being the Shimano 8000 and the Bosch performance cx these motors are a high torque and smooth. As you reduce the price, you tend to lose either torque or smoothness. Many NZ companies choose high torque motors to help combat the tough hills but they end up being less smooth overall. European brands will tend to run motors with less torque as they have lower speed restrictions, but those are often very smooth systems.

48v systems are also gaining popularity, those bikes are faster and gruntier making them ideal for larger riders or hilly areas.

Battery

One-third or more of the cost of an e-bike is the battery.



The big old-school bike brands have opted for batteries with 36v. Some of the innovative and popular New Zealand electric bike industries have switched to 48v, these tend to be faster bikes that have more power and torque. A lot of new techs are switching to 48v as it adds 33% range/capacity to the battery.

The range is indicated by the capacity given in watt-hours (WH) or amp-hours (AH), a 10AH 36v battery is 360WH, the higher the capacity, the greater the range.

The bike has the smallest recommendation of 10AH, this is about 1 hour of travel time, but the range depends on the weight of the rider and the amount of assistance used, and the weight of the rider.

360Wh = 1.4 hours for a 250w motor at full speed on the floor, without considering any other factor.

Battery position is often considered, though for most riding all battery positions are fine. The majority of your weight needs to sit over and between the center of your wheels which all e-bikes batteries do.

This is because as a rider you are higher and more heavy than the battery so your weight/position will keep the weight central.



Drive train

Basically these are your gears, an electric bike will usually tell you how many speeds it has, how many gears you can choose from, and the model of the derailleur (the part that changes your gears).



If the bike doesn't have Shimano or SRAM gears, it can be more difficult to repair them. The more speeds generally mean that the derailleur also improves, a Shimano Acera 7-speed will not shift as well as 11-speed Deore XT derailleurs.

Drivetrain parts often need to be replaced, so stick to well-known brands.

To extend the life of your drivetrain, check to see if the engine has a gear sensor, this will signal the engine to reduce power while shifting gears.



Brakes are not technically part of the powertrain, but they follow similar rules.

Stick to:

- Shimano
- SRAM
- Techtro
- Magura

These will have spare parts available and will be of better quality to help stop the power of your electric bike.



Frame build

Each bike manufacturer will have a different build quality of the bikes, this affects the stiffness and riding position of the bicycle.



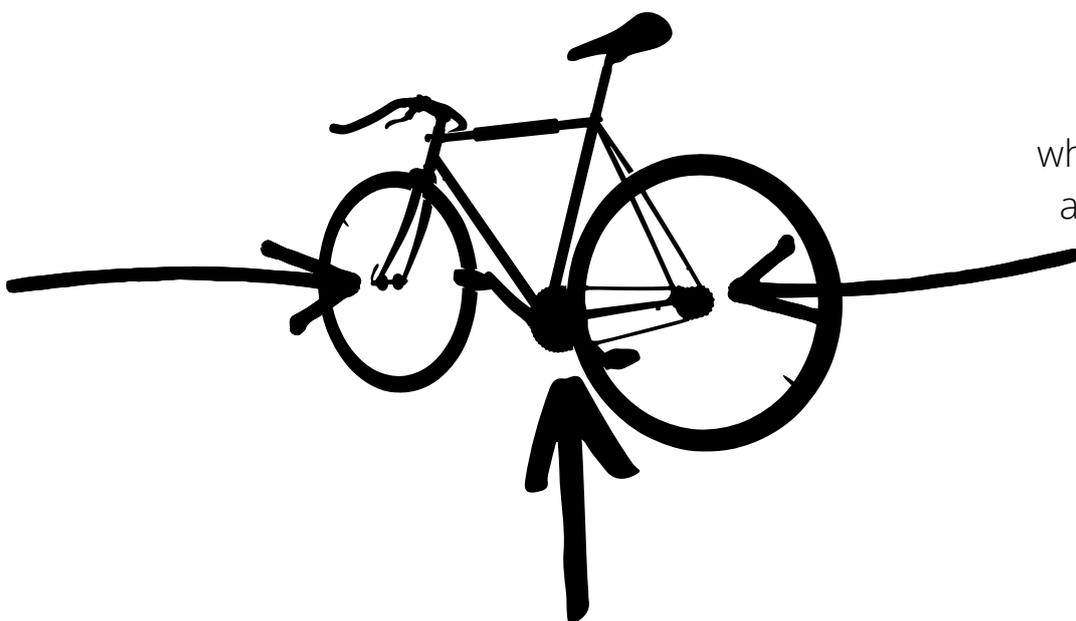
To test the frame, you will need to test it and rotate it.

Some frames will be reinforced in some places this will make them tougher, remember there are lots of forces acting on your bike so they need to be tough.

The final part of the frame is the geometry, this is your ride position of the bike and in section 2 we talked about the different styles. When you look at an electric bike you can often tell just by looking at the parts to see its quality, a well-built bike will have nicer parts, is the bike rack integrated into the frame, or does it look well built? tell you a lot about the quality of the bike.

The strength of the frame determines its torsional rigidity, if a bike flexes too much in the middle when rotational forces are applied it will wear out over time, better quality bikes will not flex a lot from the middle.

A certain amount of flexibility is needed in a frame, but the flex should not be on any crucial joints, and the bottom bracket of a bike is your most important as that is where a lot of force is applied.



where the twisted forces are applied / torsional forces

Twist here shows a lack of torsional rigidity in the frame

WHERE TO BUY YOUR EBIKE



We all want the best deal, unfortunately, not all places to buy bikes are the same. Buying new is best, this means you can get a warranty and sometimes services included. E-bike specialists will have a larger range of e-bikes and e-bike experience.

When buying second-hand online, keep in mind some can be stolen bikes. Ask yourself, does the seller seem like this bike belongs to it?

Always ask if the bike comes with:

- charger,
- battery,
- keys,

If any of those things are missing, it should be a big alarm that the bike was stolen.

When buying an e-bike the recommendation is to buy a high quality lock at the same time: d-locks or high safety rated chains are best. Frame locks are another good option (make sure to grab an extension chain as well if you can).

LEMON CHECK/ TEST

Before you buy an e-bike do our quick lemon check, this will immediately tell you if the bike is good quality

- Torsional rigidity - grab steering and end of rear rack/top of rear tire -pushing with one arm pulling with the other. Looking at the center of the bike - is there a twist?
- Fork test, axial stability. Hold front brake and wiggle bike forward/backward. Any play? Now try doing so with a non-suspended bike. The difference is marked, do u need suspension? For commuting it's good to know you also save 2.5 kg weight.
- Add up your OHM's - $wh = V \times Ah$... how far will this battery take me
- Wiring where does it run/feed (internal cabling shows better design and quality)
- Is this a "staying enterprise" -a true Brick and Mortar shop? or one more looking like a "hit and run?", Spares? / tech help/ manuals / warranty etc.
- U2 "rattle and hum" music playing -shake the bike, lift and drop it. Does it feel together?
- Bike the bike → pure pedal. Turn the bike off and try it like a normal bike. This will tell if the geometry and design of the mechanical setup are up to scratch. A good electric bike starts by being a good bike :)
- Size, and adjust rider position and comfort → can I sit here for xx hours? do not skimp on test time and rides.

OUR TOP PICKS

Due to massive changes in the market, some of these models may not be available immediately but there will be similar bikes around. Ask the e-bike experts about similar models when you try the bikes.

Step through on-road/city

1. Avantie-metro 2



Value ★★★★★

Battery size: 500Wh

Motor: Bosch Active Line Plus (50nm)

Drive train: Shimano Altus 9sp

A fantastical bike with lots of extra cool features for your weekend cruiser or regular commuter

2. Sinch Juant 2



Value ★★★★★

Battery size: 504Wh

Motor: Shimano E6100 (60nm)

Drive train: Shimano Acera 9sp

Kiwi designed, with a super light frame for the weekend cruiser or regular commuter

3. Scott Sub active USX

Value ★★☆☆☆

Battery size: 400Wh

Motor: Bosch Active line (40nm)

Drive train: Shimano Alivio 9Sp

European design with super low entry,
for the weekend cruiser or regular
commuter



Step through off-road/ trail

2. Wattwheels bighorn ls



Value ★★★★★

Battery size: 672wh

Motor: Dapu 48v mid-drive (95nm)

Drive train: Shimano Deore 10sp

This kiwi designed bike with some serious grunt, this bike shows why 48v is perfect for NZ commuters and weekend cruisers.

3. Evinchi Kea



Value ★★★★★

Battery size: 468Wh (upgradeable)

Motor: Dapu mid-drive (85 nm)

Drive train: Shimano Deore 10sp

This bike is amazing value, and a comfortable design from a kiwi company, ideal for a weekend cruiser

1. Sinch Juant ez 3



Value ★★★★★

Battery size: 504Wh

Motor: Shimano 6100 (60nm)

Drive train: Shimano Alivio 9sp

Designed for kiwi riders, with some little details making it a fantastic ride. Ideal for a weekend cruiser.

Top city bikes

1. Scott silence eride 20

Value ★★★★★

Battery size: 600Wh

Motor: Bosch performance line speed (85nm)

Drive train: Sram NX 11sp

This bike is the ultimate commuter vehicle, with up to 45kmh speed, super-bright lights and sleek design.



2. ONYA F-19 mid drive

Value ★★★★★

Battery size: 346wh

Motor: Dapu mid-drive (95nm)

Drive train: Shimano Altus 7sp

An ultralight folding bike, with more than enough up and go. This little bike is more capable than you could imagine.



3. Wattwheels bighorn

Value ★★★★★

Battery size: 672wh

Motor: Dapu 48v mid-drive (95nm)

Drive train: Shimano Deore 10sp

This kiwi designed bike with some serious grunt, this bike shows why 48v is perfect for NZ commuters and weekend cruisers.



Off-road, full suspension

1. Scott strike eride 920



Value ★★★★★

Battery size: 625WH

Motor: Bosch performance CX (85nm)

Drive train: Shimano XT-Deore12 Sp

The bike has Scott's amazing twin lock suspension system, Bosch's best motor making it an amazing ride for technical trails

2. Norco Sight VLT A2 29



Value ★★★★★

Battery size: 500Wh

Motor: Shimano STEPS E7000 (60nm)

Drive train: SRAM SX Eagle 12sp

This is a carbon electric all-mountain bike with Norco's legendary descending capability and quick, confident climbing

3. Avanti Hammer-e LT 1



Value ★★★★★

Battery size: 500wh

Motor: Bosch performance CX (85nm)

Drive train: SRAM NX Eagle, 12sp

built with quality designed parts, with performance in mind it rides tricky trails with ease.

Off-road, Hard-tail

1. Norco Fluid VLT 1 Electric

Value ★★★★★



Battery size: 630Wh

Motor: Shimano STEPS E8000 (70nm)

Drive train: SRAM SX Eagle 12 Sp

By integrating the latest in e-mountain bike technology into its ultra-light aluminium frame, makes it ideal for technical off road and weekend cruising

2. Merida ebig nine 400 eq

Value ★★★★★



Battery size: 630wh

Motor: Shimano STEPS E6100 (60nm)

Drive train: Shimano Deore 10sp

A sporty 29er frame with a comfortable riding position, with all the fittings for a perfect trail ride.

3. Wattwheels big horn

Value ★★★★★



Battery size: 672wh

Motor: Dapu 48v mid-drive (95nm)

Drive train: Shimano Deore 10sp

This kiwi designed bike with some serious grunt, this bike shows why 48v is perfect for NZ commuters and weekend cruisers.

Family and cargo

1. Tern gsd s10



Value ★★★★★

Battery size: 400Wh

Motor: Bosch performance line (65nm)

Drive train: Shimano Deore 10sp

A cargo bike that is capable of fitting 2 kids seats without being longer than a standard bike, making it ideal for the modern family

2. Butchers & Bicycles Mk1-e



Value ★★★★★

Battery size: 400wh

Motor: Bosch performace line

Drive train: Nuvinci hub belt drive

This amazing tilting trike is ideal for carrying kids, it has the stability of a trike will riding and handling like a normal bike.

3. Achielle Ferre



Value ★★★★★

Battery size: 500wh

Motor: Shimano steps 7000 (60nm)

Drive train: Shimano Alfine 8speed

A beautifully hand-built dutch bike, these bikes are made with care and style making them a fantastic ride.

Top 2's by price

\$2000 - \$3000

ONYA F-19

- A 19kg folding bike, with plenty of grunt, designed for nz cities.

EVINCI Infinity hub drive

- For under 3000 this bike can handle everything, with a torque-sensing rear-drive motor



\$3000 - \$4000

EVINCI infinity mid-drive

- Evinci has again created a bike at a price that amazes us, the quality and parts make this a great buy



Wattwheels bighorn

- A super grunty bike with kiwi riders needs in mind.



\$4000 - \$5000

Avanti e-metro 2

- A low step-through with bosch technology and all the extra features any rider could need.



Sinch jaunt 2

- Super light frame, and comfortable riding position ideal for light trail riding.



\$5000 - \$7000

Tern GSD s10

- A compact cargo bike with the bosch systems perfect for modern families.



NORCO Fluid VLT 1 Electric

- A Carbon dual suspension bike for around 7 grand this bike is amazing value, and is designed for performance



\$7000 +

Scott silence e-ride 20

- Superfast, super smooth, with a big range this bike really is the ideal commuter bike.



Scott strike eride 920

- Scotts technology and design make this a fantastic off-road bike that handles tehcnical trails with ease.

