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What Are Electric Bike Classes and Why Do They Matter?

 Home ▶ Guides ▶ What Are Electric Bike Classes and Why Do They Matter?

As electric bicycles have become more popular in Europe, Asia and the Americas different types of products have entered the space. Some could be considered "low speed electric bikes" as defined by U.S. Public Law, while others are more closely related to mopeds or motorcycles based on their power and speed. For this reason, several "classes" were created in Europe defining how and where specific ebikes could be used. These classes are now becoming relevant in America and other locales as laws are put in place determining whether and where an ebike can be used on the road, bike paths and mountain biking trails.

Class 1: Pedal Assist

The electric drive system on the ebike can only be activated through a pedaling action and is limited to relatively low speeds. The sensor usually measures pedal movement, pedal torque or bicycle speed (sometimes all three) and sensors are located in the bottom bracket, rear hub or rear wheel. In parts of Europe this class is limited to 15 mph (25 kph) with motor wattage \leq 250 watts. In America, because of our more liberal vehicle definition, this class is limited to a motor powered speed of 20 mph (32 kph) with motor wattage of \leq 750 watts. Due to the low speed of operation and required pedaling action this class should benefit from the same rights and access privileges as non-assist bicycles and should be able to be used on streets, bike lanes, multi-use bike paths and off-road trails.

Class 2: Throttle On Demand

The electric drive system on the ebike can be activated through a throttle element such as a grip-twist, trigger or button and is limited to low speeds. The motor system may also be activated through a pedaling action as with Class 1. In parts of Europe this class would be considered a motor vehicle and is prohibited from use on trails and other bicycle-specific infrastructure and is therefore less common. For those locations where it is allowed in Europe, the top speed is limited to 15 mph (25 kph) with motor wattage \leq 250 watts as with Class 1. In America this class is currently less restricted and therefore more common. The top speed is limited to 20 mph (32 kph) with motor wattage of \leq 750 watts as with Class 1. Due to the low speed of operation without the required pedaling action, this class may be a bit more restricted but still benefit from the same rights and access privileges on paved surfaces as non-assist bicycles and should be able to be used on streets, bike lanes and multi-use bike paths.

Class 3: Speed Pedelec

The electric drive system on the ebike can be activated through a pedaling action to reach higher top speeds. In parts of Europe this class is also considered a motor vehicle and requires special licensing, the use of an identification plate at the rear of the bike may be required and use is limited to roads or private property only with a maximum speed \sim 28 mph (\sim 45 kph). In America this class could still be considered a "low-speed electric bicycle" if human power propels the bike above 20 mph and as such, does not require special licensing but may be even more restricted to roads, adjacent bike lanes or on private property with a maximum speed \sim 28 mph (\sim 45 kph) and motor wattage of \leq 750 watts. In America this class is often combined with Class 2 which produces bikes that have a throttle element capable of powering the rider up to 20 mph

(32 kph) on motor power only, as well as a pedal assist mechanism capable of powering the rider up to 28 mph (45 kph). In parts of Europe, where throttles are less common, most Class 3 electric bikes only offer pedal assist.

Class 4: Moped or Motorcycle

The electric drive system can be activated through a pedaling action or throttle. The top speed is above 28 mph (45 kph) and/or the motor wattage may be greater than 750 watts. In all major geographies this class would be considered a motor vehicle which requires licensing and registration and is limited to certain motorized off road trails or traditional roads. There has been some confusion in America where machines that resemble bicycles (having pedals) that are capable of high speed and power are used inappropriately without licensing or insurance and on infrastructure reserved for bicycles such as paths and mountain bike trails. This behavior is subject to the same legal action as driving a gas powered motorcycle or car and may result in severe legal ramifications.

The value of these classes and a key takeaway for the U.S. market is that the PL 107-319 law categorizes ebikes with ≤ 750 watts of power and top speeds of ≤ 20 mph as bicycles. It does not determine where this class can be used however. In the U.S., use is determined at the State or Local level, sometimes in the vehicle code section of law. By introducing classes, specifically the first three classes above, cities and states can help guide use for ebikes. These classes are being established in the U.S. by the BPSA (Bicycle Products Suppliers Association) using a special Electric Bike Committee and are being modeled on what has worked in Europe. The BPSA committee is working directly with ebike manufacturers and suppliers for buy-in and is creating model legislation to guide States. This is why these classes are also being listed here at ElectricBikeReview.com to help consumers understand what they mean and how they apply to bikes for sale. The goal is to create some consistency in the ebike space so that one type of low speed electric bike could be used on paths or trails in multiple geographies across America.

On October 7th 2015 California Governor Jerry Brown signed into law a bill that specifies ebike classes in California. It also paints a more clear picture for how mopeds can be used legally and the infographic grid above was launched to help guide consumers.

39 Comments

DARREN BROWN

October 11, 2014

REPLY

I was hoping to see a review on electric velomobiles, also I was wondering are any electric bikes rated for people my size (6'4" 440 lbs.)

 **COURT RYE** EBR

October 11, 2014

REPLY

Hi Darren, one of the larger electric bikes I know of is the Pedego Interceptor. It has a strong motor and oversized frame with larger balloon tires that add cushion. The two founders of Pedego are larger guys that have really focused on building solid bikes that will work for their own needs but these days they are also offering small frames for shorter riders. I'd recommend test riding a Pedego if there's a shop nearby but otherwise you could connect with Long Island Electric Bikes out of New York (they ship nation wide and won a dealer of the year award for 1014). If you mention EBR they'll throw in a set of fenders or a saddle bag for free and I'll get a small commission. Regarding velomobiles, check out the Organic Transit ELF, it's solar powered and includes a canopy for aerodynamics and visibility.

DAN

October 16, 2014

REPLY

Class 1 : under 750W, limited 20 mph, PAS

Class 2 : under 750W, limited 20 mph, PAS + throttle

Class 3 : under 750W, limited 20 mph by throttle, 28 mph by PAS

Class 4 : over 750W, over 28 mph, throttle or PAS

It appears to me that we are essentially dividing ebikes into two classes, not four, with the first two essentially the same and the third an extension of class 2. It will be interesting to see how the BPSA plays this out. I think the laws need a modern update.

 **COURT RYE** EBR

October 16, 2014

REPLY

Hi Dan, great feedback! I tried to keep this article as clear as possible without missing any of the nuances. For me, the big difference between Class 1 and 2 is that mountain bikes without throttle may be allowed on some trails whereas those with may be disallowed. The big difference between Class 2 and 3 is that under 20 mph may be allowed on city bike trails whereas those capable of 28 mph may be kept to roadside bike lanes only. Class 4 is really just a motorcycle and doesn't belong anywhere but in a street lane with a license or on dirt jumps or race tracks on private property :)

DAN

October 17, 2014

REPLY

Court,

I appreciate the transparency, It is a positive step that ebike OEMs are working with the BPSA to define classes and assure a place for them to ride. I know Larry Pizzi is involved from other posts here at EBR.

Here's the thing. There are two battlefronts. 1. A fight to get trail access (Mtn biking, bike paths)
2. A fight to get road/bike lane and commuter bike path access for ebikes. My concern is that the electric bike subcommittee is primarily focusing on the trails and letting the road commuters get stuck with mis-classification and over regulation.

Here is why.

Serious commuters will NOT be satisfied with 750W and PAS only.

The law says 750W, 20mph throttle only. The truth is that 750W, on a hybrid or road bike, or mtn with slicks, can get to 28mph with pedaling, whether as PAS or with the throttle. The committee seems to be excluding throttle bikes for Class 3 in order to appear compliant with the national law. Having a throttle vs PAS is significant in some factors, but it is a minor factor in the overall performance given identical bikes/motors/persons. It seems more discriminatory than justifiable.

Second, you quoted:

"Class 4 is really just a motorcycle and doesn't belong anywhere but in a street lane with a license or on dirt jumps or race tracks on private property :)" Really? So ANYTHING over 750W with a throttle, should be in traffic lanes and not bike lanes, never be on a community bike path, and off road be limited to motorcross tracks with 125cc and 250cc dirt bikes? That is a class 4 ebike?

The problem here is reality. People who start to commute will eventually find that sweet spot of riding between 20-30mph with traffic, in the city, side roads (25-30mph) is a desirable performance. The newer high end PAS bikes like Turbo and Stromer 2, Spritzing appear to meet that ability, but lack a throttle. The throttle adds safety to accelerate from a stop light and get a start ahead of the cars. It also allows to keep speed, but stop pedaling on bumpier roads, so you don't lose speed or balance - safety again. The power needed for such speeds is between 500W and 1200, IMO. These are NOT motorcycles. People still contribute to the power with their legs and the normal gearing is high enough to still be a factor. Once the power is so high that no leg power helps at top speed due to gearing or just ratio, THEN it becomes an e-motorcycle.

I hope the BPSA would consider the class 4 to be speed ebikes, or emopeds, PAS and/or throttle up to 1200W. Above that, I can see parallels to scooters, and make them class 5.

Again, this delineation between class 3 and 4 is not fair to road ebike commuters. WE (the ebike community) will be handcuffing ourselves and adding undue regulation if we leave out a speed-ebike, or emoped class of ebikes, which are closer to a bike than a motorcycle.

Again, serious commuters will NOT be satisfied with 750W and PAS only. Am I alone on this?

 **COURT RYE** EBR

October 17, 2014

REPLY

Hey Dan, I like where you're coming from and really appreciate your well thought out feedback. My initial reply was more stating how laws see these "Class 4 ebikes" vs. how I feel. In my opinion, something like the Outrider recumbents or the Grace One which both go above 28 mph and have throttles fit exactly what you're talking about. They still benefit from rider input and have enough gears (and are light weight enough) to make pedaling relevant but they aren't as large or powerful as a motorcycle. These are effectively electric mopeds and maybe they could shift into bike lanes or even cross through a trail once in a while but technically they are more powerful than a speed pedelec and if they were involved in an accident the damage could be much worse. I'm not saying that tossing them into car traffic is a perfect solution, it's akin to riding a gas powered moped in traffic. I agree that there's this new blurry space and in many ways it resembles the "neighborhood electric vehicle" space that little golf carts and mini cars fit into.

DAN

October 18, 2014

REPLY

Court,

Thanks for clarifying the legal perspective . I don't want to dominate this post , but discussion and advocacy needs to happen.

I fear that the law will not favor the class 3 speed pedelecs and they will get combined with the class 4 and essentially get treated like a motorcycle. You mentioned liability for a Grace One that could be riding 30mph. That is not much different than a turbo going 28. Once the lawmakers realize that speed pedelecs are skirting the 20mph law, they will get all safety/legal tight and regulate them. No?

What is happening with class 1 and 2 is fine and covered under the fed law. The debate for 20-30mph bikes is on the table.

I hate the idea of regist, turn lights and licenses for an 800w ebike, required to stay off bike paths and the road only. It will kill effective ebike commuting. Stealth fighter and Optinike R11 are both in this emoped category.

So again, I hope Larry Pizzi and the ebike committee reads this:

PLEASE add a class and make class 4 for ebikes beyond the 20 mph, throttle only, 750w. Class 4 should be considered high powered ebikes , call them emopeds. Cap them at 1200w and 35mph. Require front and rear lights, no turn . Recommend all class 1-4 allowed on bike trails, subject to local speed limits , for commuting purposes.

I stop and watch/listen.

Dan

 **COURT RYE** EBR

October 18, 2014

REPLY

I see a lot of bike paths with 25 mph speed limit signs. I think a class of ebikes that cut of there would make sense... enable faster commuting but still not overwhelm the human-powered pedestrians using the space.

DAN

November 11, 2014

REPLY

Court said: "I see a lot of bike paths with 25 mph speed limit signs. I think a class of ebikes that cut off there would make sense... enable faster commuting but still not overwhelm the human-powered pedestrians using the space." I have been thinking about this lately. Road bikes go faster than 25mph, why limit ebikes? Riders simply need to ride under control and follow the speed limits when posted. Any upper limits should be road speed based, not bike path based. Upper limits, for ebike road speed designs, tend to be converging to 30-35mph. Why? That is about the right speed where the power and weight from adequate batteries, for adequate range, converge to support the wind drag. Also, that speed is adequate speed for city and suburban traffic flow. Finally, ICE scooters, with 50cc engines, tens to have 2.7-4.5 hp and go 35-45mph, and we don't want to be in their classification. We need a separate classification system for ROAD e-bikes.

For the road, 3 classes: 1. e-bike : 1 hp or less, 20mph with throttle/limited, 28mph pedelec limit (existing National Law) 2. e-moped: 1 hp -2.7 hp, throttle or pedelec, 35mph limit 3. e-moto: 2.7 hp+, an electric motorcycle or scooter. OR 2 classes: 1. e-bike : 1.5 hp or less, throttle or pedelec, 35 mph limit by design. 2. e-moped/moto: 1.5hp +, electric moped, motorcycle or scooter. fun stuff. Dan

 **COURT RYE** EBR

November 13, 2014

REPLY

Hi Dan, the majority of ebikes are capable of going above 25 mph but only under human power (just like on a road bike). Maybe there's a cultural bias that people who are capable of pedaling faster are also capable of controlling themselves at those higher speeds. It requires a high level of physical aptitude that a high-speed ebike would deliver to the masses who may not have the same skills or reflexes. This is a philosophical viewpoint, it may come down to the simple fact that with traditional bicycles (since they were invented in 1817) there was no easy way to limit speed and bike paths didn't exist. In a sense, they've been grandfathered in and now we post speed limit signs and enforce behavior vs. upstreaming the issue of high speed accidents as we've done with ebikes.

Here's an interesting reference to the first recorded bicycle accident: "a Glasgow newspaper reported in 1842 an accident in which an anonymous 'gentleman from Dumfries-shire... bestride a velocipede... of ingenious design' knocked over a pedestrian in the Gorbals and was fined five British shillings." source Wikipedia.

DAN

November 26, 2014

REPLY

Hey Court, Nice historical antidotes. I saw a documentary recently about the evolution of bicycles...lots of regulation when they first came out...interesting. So regular bicycles get grandfathered, and have no limits except human effort? Auto mobiles get grandfathered and are enforced/regulated by behavior? But not ebikes? We have to use technology to add governors and legislate the speed, ie performance and force human behavior? Not a good free market model.

Back on point, it seems the BPSA is catering to the Bosch mid-drive, and mid power systems for off road use, giving them 3 specific categories of usage, while throwing all +20mph, throttled, +750W system "under the preverbal bus" by clumping all into a motorcycle status. Who is this classification helping and who is it hurting? I would hope and ask that is be comprehensive enough to include all our ebike bretheren who want a fair shot at market share and practical use, and not be marginalized and over burdened by specific, non justified regulation.

First, can we try this and agree "When" an e-bike, whether it has pedals or not, should be classified as an e-motorcycle, requiring a title, license, turn signals, etc? What minimum specifications qualify in terms of power, weight and speed? Also, that would NOT be the same class as an e-Moped, where pedaling does assist. If we can agree on that, then all the "real" e-bikes can be classified and shown to need fair regulation. Dan

↪ **RANDY**

March 11, 2015

REPLY

Very informative conversation, and I know I'm late to the party. A minor difference with "Serious commuters not satisfied with 750 Watt motors..." I was regularly commuting with no motor at all, and my Schwinn easily reached 35 MPH on the level and 45 MPH on the down side of the overpass. I know others more serious than I about commuting with or without motors of 500 Watts or less. They don't seem unsatisfied. True, satisfied falls far short of the pleasure I took from my 350 Watt motor getting me to work without sweat on hot days when I would previously have opted to burn some fuel.

The reason I'm piping in is the statement "Auto mobiles get grandfathered and are enforced/regulated by behavior? But not ebikes?" Actually, no, the Safety Act that added the 750 and 20MPH limits in 2002 was precisely aimed at simplifying designation of vehicles we desire to be separated from code 49. The motor codes already had gas engine sizes, limits, licensing, where and how autos may or may not be operated, etc. Anyone wanting a bike to be treated like an auto is welcome to cross any of those limits and go to DMV to make it legal. These classes are partly helping avoid all that and partly simplifying

confusion in the global market where no one country can set a law that changes another country's law. Class 2 might need to be registered and licensed in one country but not another. So each shopper knows which classes to look at.

To be clear, I agree it is disconcerting: Before e-bike: Uphill at 5-10MPH in the shoulder, downhill at 40-45 MPH keeping with traffic, level at 25-35 keeping with traffic, Nobody ever questioned anything. After e-bike: uphill at 15MPH in shoulder (slower if a pedestrians is there), never over 30 on the level (bike just doesn't have the gearing for it) but now I have to answer questions about is it legal? Not just the operation, either, there's questions on post of authorized (leather equivalent) protection in boots, gloves, and jacket as well as business pants not having enough denim/leather protection. (Did I mention the highest limit on post is 15 MPH?) So I definitely agree all who follow the operational points of law and courtesy should be left alone no matter what they drive or look like. Of course, that would bring in lobbyists for deregulating insurance, etc, etc. We're here preaching to the choir about unjustified regulation, now we need to go to the regulators to try to get them repealed.

MARIVIC DUNGO

December 15, 2014

REPLY

My ecobike has tight wheel how can i pix my problem,,what i use for that tight wheel its okey to spray a WD40 inside of my ecobike??

↪ **COURT RYE** EBBR

December 16, 2014

REPLY

Hi Marivic, to be clear, do you have an electric moped like this EcoBike Always? I'm not a mechanic but have had success using WD40 in the past when trying to loosen metal parts and reduce squeaking. You might be able to get some feedback from a company that carried this scooter in South Florida called AmericanElectric (305) 767.3289 or ask others here in the Electric Bike Maintenance Forums what they would do. It would help if you described the issue you're having more clearly with details to help people understand what might be causing the wheel to be tight (and also explain which wheel, front or back).

MANOMAN

June 14, 2015

REPLY

-- First of all, y'all need to make it simple. There ain't no one who can realistically pedal 25+ miles per hour on a level ground for a constant pace of more than 2 min with there bicycle. I don't care what kind of bike you have, it ain't happening. Try to keep up with cars going down your road at 25 mph and you'll never do it. And, if you can do it, it's only for a short sprint and you'll end up arriving at your destination with your butt all wet from sweat. Not a pretty sight.

-- eBike rules should be like this. Since they are motorized, simply limit the speed limit to that of cars on regular streets, roads, highways, but don't allow them on freeways cuz that's just too dangerous -- too many cars and not enough protection in case you fall. Now in the city, bicycles (all bicycles, not just eBikes) should not be allowed to be IN the roadway where other automobiles are UNLESS they can keep up with traffic at all times that they occupy the road. No one likes tailgating a cyclist that's only going 20 MPH on a 25MPH road. Most of the time the cyclist belongs in the bicycle lane or on the sidewalk (yes you can ride on the sidewalk -- we all did it as children and never was there a problem). And if the road you're cycling on has no shoulder, have some common sense and stay to the R side of the road so that automobiles behind you can pass around you safely. Don't be foolish and occupy the road unnecessarily -- you're a bicycle and more often than not you ride much slower than any automobile can travel. If you're a cyclist and you can't keep up with the posted speed limit for automobiles, then get out of the road and into either the bicycle lane or onto the sidewalk where you belong. If you ride on the road and not in the sidewalk or bicycle lane, then you better be following ALL the

rules as if you were traveling like an automobile (that means stopping at stoplights, using turn signals, accelerating at the same speeds as automobiles, etc.). Other than that, bicycles, with or without motors, do not need to follow automobile rules -- unless they are traveling IN the road and LIKE an automobile.

-- That's how simple this should be. What kind of complications can arise from this? None.

-- 2,324,993,281 people agree with me on this post.

↪ **COURT RYE** EBR

June 17, 2015

REPLY

Good feedback, thanks for sharing your thoughts... Did you know that 73.6% of all statistics (like your number of "agreeing" people) are made up on the spot?

↪ **DAVID**

August 21, 2015

REPLY

A bit too much stupid in the post by ManOMan.

1) Cat 1/2/3 cyclists often do 25+ MPH for hours. I ride Cat 4/5 and average 25MPH for 30 minutes, no motor assist. I normally ride about 20MPH on my commuter.

2) A lot of places it is ILLEGAL to ride on the sidewalk, some have made exceptions for young children (age may vary, but typically up to about 10), it is more dangerous to ride on the sidewalk

3) Sidewalks are horrible for riding bikes anyways, unless designed for it, on my commute (my anecdotal evidence) half of it has no bike lane, and the half with no bike lane also has a sidewalk which features a) garbage cans at least once a week, b) barely wide enough for single file pedestrians, c) often has peds walking on it d) telephone polls in the middle of the sidewalk

4) Accelerating at some random acceleration is not required by law. If it was then Semi trucks, 3 bangers, and 50cc mopeds would be banned.

In the last 18 months I have had no problem riding on a road with 4 lanes, 2 in each direction, and having cars just go around me. Some move over half a lane, others actually change lanes.

On certain parts of roads I will, as the law allows me to, take the lane for safety. Some parts it is just not safe to be riding all the way to the right. One feature of the road I commute on are drains that are below level with the road and are dangerous for me to bike over, especially when wet. I will stay towards the middle of the lane to avoid these and to avoid swerving back and fourth every time one comes up. The greatest measure a cyclist can take for safety is to stay predictable.

I think a major safety concern for e-bikes is with the ease of speed making it possibly more dangerous to other riders on these bike paths and trails. I know on multi-use paths I often have to go much slower than my normal pace because of other traffic. Should it be left up to vehicle classification to regulate which ones qualify, and which ones don't? Or should we leave it to common sense limits. Perhaps adding speed limits to multi-use paths could help.

The major complication from your suggestion is the spotty coverage of bike lanes. Often times while cycling in cities I will be on a nice bike lane, then suddenly no lane at all for 500 ft, and then a lane again. As my anecdotal commute I have a bike lane for about half a mile, then no bike lane at all for 1.5 miles, then a bike lane for 1 mile. I'd love for there to be a bike lane the whole way, but the city just repaved the streets and had no plans to connect these two sections. I've ran across many instances of this, some of them will be gracious enough to put up a "Bikes on Roadway" sign, others not so much.

I very much have enjoyed this article and the discussion here. I know it takes being one of the tribe to understand their dilemmas. Just like being a cyclist helps you understand the dilemmas faced by cyclists every day. Not being an e-bike user I don't quite have the same perspective, and don't understand the nuances of riding an e-bike vs. a traditional bike. Not having come across many on my commute (I'm lucky to see another cyclist commuting on most of it) I'm not sure of any safety concerns that may be present allowing mixed usage in bike lanes, but for now I'll go with what my license plate states, "Share the Road".

➔ **GREG**

October 16, 2015

REPLY

If I may, To clarify/correct ManOMan's opening statement:

"— First of all, y'all need to make it simple. There ain't no one who can realistically pedal 25+ miles per hour on a level ground for a constant pace of more than 2 min with there bicycle. I don't care what kind of bike you have, it ain't happening. Try to keep up with cars going down your road at 25 mph and you'll never do it."

This statement is unequivocally wrong. For semi-empirical evidence that a great number of cyclist can maintain a minimum speed of 25mph on the flat for two consecutive minutes, please refer to the smartphone app "Strava". In fact, if you are not able to maintain 25mph on any popular, flat, +/-2.4 mile segment, you're likely to find yourself in the slower half of all riders.

In a more anecdotal vein (anecdotal yet officially recognized by all cycling oversight parties) I averaged nearly 34 mph (solo) on a 15+ mile ride. What is more, this was in 1989, an era when road bikes were considerably slower as compared to their modern day counterparts, and LONG before any e-bike existed (or at least an e-bike manufactured for retail markets). I'm not sharing my performance to brag but only b/c it's a great example of how off-base and nonsensical current e-bike classifications seem to be. Even in my old age (54 years old!!!) and running errands on my 3-speed, 35lb, beach cruiser - wicker basket on handlebars and all - I find myself tailgating/passing cars on roads with posted speed limits of 25 mph.

My suggestion would be that the governing bodies, through documented, peer-reviewed research, determine the point of "critical mass" (i.e. weight of bike) when a bicycle could reasonably be considered a threat to the health of a person traveling in a motor vehicle should the two commuters' vehicles (bike & car) collide.

Let cyclists (at least those on bikes that aren't big enough to win-out against a vehicle in an accident) govern themselves. If too slow for normal traffic, stay out of the road. if riding on a sidewalk, give pedestrians the right of way, and if your driving your car in the left-most lane and you notice a bicycle 10 feet off your bumper, move out of the fast lane to let me pass.

➔ **COURT RYE**

October 20, 2015

REPLY

Greg! It's an honor to receive your thoughts here, thank you for taking the time to connect and share on the subject of electric bicycle law. I like the idea of regulating behavior, not technology, and agree that cyclists are probably not a threat to cars... however, they could be a threat to each other as well as pedestrians on foot who share spaces where cars do not go (paths and trails). With the increased speed and weight of ebikes the damage suffered in an accident could be greater than on an unpowered bicycle... but in practice, modern ebikes aren't much heavier than old-fashioned pedal power bicycles and the

ability to pedal faster than 25 mph (as you explained) is not uncommon... even on an electric bike that's turned off. So it would seem that the upside of an ebike being permitted to attain higher speeds far outweighs the straw-man risks posed by regulators.

So where does this leave us? The grey area to me is really that underaged cyclist who is untrained, not legally accountable and now has a fast, heavy vehicle at his or her disposal. This is the person who is showing off with friends, causing erosion on trails or being disrespectful to fellow cyclists, riding recklessly and putting others at risk that would otherwise be reduced if the bicycle was unpowered. The one bad apple spoils it for us all! Well, unfortunately I have been this bad apple on my snowboard, and was knocked unconscious two times even while using a helmet. I cut the ropes, went way too fast in slow sections and passed people at high speed on catwalks. Thankfully I really only hurt myself. I blame testosterone and evolution, perhaps I was also a bit spoiled and needy for attention at that age. Some of this may be a social issue, maybe I didn't have the support from my community or friends that could have led to better behavior but the consequences are still real. If I had been on a powered snowboard could things have been even worse? Maybe... I'm just not sure, just sharing from my own experiences... Now that my knees hurt and I've lost the desire to go so fast (because I don't heal as readily) I definitely don't want to be hit by a kid who's out hot-rodding on an electric bike. The proper benefactors of higher speed ebikes seems to be the commuter who wants to zip up to speed with cars in between sections of bike path or the the road cyclist or trekker who is going for speed in beautiful locals or long distances across the countryside.

Would the world really end if electric bikes were allowed to go 30+ mph? Maybe we'd just need to dedicate some social resources to police watching out for reckless riders or add a new training certificate similar to a driver's license for high speed ebikes but not require insurance or a driver's license? I also surf and there's a social dynamic where people hold each other accountable and you get your ass kicked if you put others at risk, maybe that would happen with bikes, I think it already does to some extent. We could develop better safety gear, create fast lanes on the bike path and so many other things to make this work. In any case, thanks again for your thoughts and great job in the World Championship and Tour de France... you're an inspiration and welcome here anytime. I travel a lot and test ebikes everywhere so ping me if you'd like to try a new model or just go for a ride and continue this conversation :)

TOM

August 15, 2015

REPLY

I own a class 3 pedelec, a Focus S27 2014. I decided to purchase it after a local bike shop let my father use it when his class 1 Jarifa 3.0 was sent back to Germany with a rear hub issue. I had used his jarifa a few times to test it out and was impressed but disappointed that I could not reach the much higher speeds I could on my old 2006 Kona xc'ish hardtail on the flat or downhill, but my average was higher on the identical 10 mile hilly UK country lane commute I do. The class 1 e-bike did it in just over 30 mins as opposed to just about 40 mins (if the wind is favourable) on the normal mountainbike. When he borrowed the class 3 S27 I took it to see what difference it would make to my work run as it is very similar to the Jarifa 3.0 sharing identical frame and better but similar components and I fell in love with it and managed to cut my travel time down to just over 20 mins, I had to have it and made the shop a offer for it and got it for a lot less than retail due to it being ex demo :) I had to have it because I had the best of both worlds all and more of the hill capability of the jafira 3.0 but a top speed that got closer (but not as fast) as the old Cindercone. Realisticly the S27 is rated as a 28mph pedalac and does continue to assist up to that speed but due to a reasonably low gear for road use and real life conditions and my choice of tyre I dont exceed it that much on the flat and due to the old cindercones higher gearing I can still go faster over short distance favourable roads non

powered on a road spec bike my top speed would be higher still so potentially more dangerous considering it would have less brake power and skinny tyres. The class 3 actually feels safer on roads with traffic than the other options I have because it does not hold faster road users up like the class 1 or the non powered bike can. But any bike should be ridden responsibly I turn mine down to eco mode in areas with pedestrians and shared paths etc but some people are idiots so it is a grey area certainly but I do not feel like im causing more potential danger using the class 3 bike than I do with a normal bike or a class 1.

↪ **COURT RYE** EBR

August 17, 2015

REPLY

Nice! Sounds like you've got a bike that really works well and achieves those higher speeds but didn't cost so much. Glad you got to demo one first and came away with a solid experience, hope it stays good for you for many years!

↪ **DAVID**

August 21, 2015

REPLY

Your last comment on the slowing down in shared use area seems to be the basic concern over regulation. These e-bikes can be dangerous if used to their full potential, and whether or not having that potential is justification for classification and regulation.

If everyone was as sane about how they ride as you sound like you are then it wouldn't be an issue. Sadly there are those who may take their bikes out and full throttle through shared pedestrian areas.

I guess the question is where do we draw the line, and what justification and rational do we use for drawing it?

JON

October 14, 2015

REPLY

Great conversation, but the regulations are generated by the undereducated/inexperienced. The danger/risk in mixing modern ebikes with people and cars is based to 3 variables. Weight, speed and the judgment (age) of the operator. Maximum speed should be controlled with a speed limit sign (On streets and paths, etc.). WHERE you can ride should be limited by the weight of the vehicle and the age of the rider.

↪ **COURT RYE** EBR

October 20, 2015

REPLY

I like your thinking on this... Lots of people appreciate high-speed ebikes because they commute on streets and want to keep up with the flow of traffic and reduce the annoyance caused by cars, they want respect and control. Other people buy those oversized electric vespa scooter type things and ride them on bicycle paths where they just don't fit in... Your ideas around weight and obeying speed signs appeals to me, just like we hold people accountable for pedaling way too fast if they are on a bicycle path with a 20 mph top speed sign posted, the motor makes it easier to break the law but also empowers the rider in areas where the law does not exist. I'm not a fan of forcing people with settings and hardware vs. educating and holding responsible but then again, young people without license and insurance can use these and may not have the same level of maturity to not break the law and in turn put others at risk.

↪ **GREG**

October 29, 2015

REPLY

Brilliantly simple, sound-minded logic, Jon! Those same variables comprise the backbone of current motor-vehicle traffic laws so why re-invent the wheel. Pun intended. Best

MIKE BROWN

November 4, 2015

REPLY

There is another class that should also be considered. I currently have a trike that is powered by a 900W cyclone mid drive. I cannot use my legs because i am a paraplegic. I would still like to be able to ride on mountain bike trails and on the road like any other cyclist. I consider my trike an electric wheelchair but given the guidelines above it appears that it is a moped and I should have license etc...

↪ **COURT RYE** EBR

November 10, 2015

REPLY

Interesting point Mike... I wonder if there are compromises or special rules for people with limited mobility? I can understand why you'd need more power (especially for off-road terrain) if you cannot contribute much as a rider. This was the primary focus the guys designing the Outrider Horizon and most of the recumbent ebikes they sell are outside of these "low speed electric bike" classes. I can't add much here besides my support and hopes that you are able to enjoy riding and be safe :)

JOHN FARRAGHER

November 7, 2015

REPLY

Hi, excellent site and thanks for all the work your doing. On question, as I'm based in Ireland and so I'm regulated by the European Union do you have the web address where I could find the relevant European regulations. I'm considering building my own bike as a project and do not want to fall foul of the regulators. Thanks in advance, John f

↪ **COURT RYE** EBR

November 10, 2015

REPLY

Hi John! Good thinking... I haven't gone in-depth with EU laws here on the site but you can find a lot of great resources on this Wikipedia article. Ebike laws are evolving and different country to country (state to state here in the US) so this wiki page is a great place to check in :)

KYLE

November 10, 2015

REPLY

I'm new and know very little about this stuff, but correct me if I'm wrong, I cannot consider buying a Specialized Turbo to commute on a class 1 path because it is a category 3 bike?

People want to keep fast EBikes off the bike paths for safety reasons... Bike paths in general cut through some pretty shady areas so bikes are the last thing they should be worried about.

200mph cars are allowed to drive on the streets just like 28mph bikes should be allowed to ride on a class 1. All classes should be allowed IMO and obey 15-20mph speed limit.

↪ **COURT RYE** EBR

November 10, 2015

REPLY

Excellent points Kyle, I tend to agree with you. One thing comes to mind as a possible reason that hardware is regulated in the ebike space vs. behavior (which is the case for automobiles). To drive any type of car legally an operator must be licensed and insured... This is not the case with vehicles classified as bicycles. Basically anyone can hop on and pedal away and this presents the increased risk of misbehavior by an uneducated, unskilled and uninsured user. On the flip side... most people can pedal unpowered or powered bicycles above 20 mph and still have an accident that causes damage. This second point highlights a gray area where a reckless cyclist would be held responsible for crashing while a reckless ebiker would get that charge as well as operating an unregistered motor vehicle without a license which could result in much more extreme fines, penalties

and even jail time. Here's a long list of penalties in the state of New Jersey. The consequences could get even worse depending on where the violations occurred... on street vs. public park or trail vs. private property where you could be sued by a private party for gross negligence if a person is seriously injured or killed. I'm not a lawyer but this is my interpretation of what I've read while exploring the web and speaking with some individuals.

KYLE

November 11, 2015

REPLY

Darn it. Well I'm not surprised about the rules that came from Chris Christie's state. I live in a mountainous area where the only way out of the mountain is Hwy 17 to Los Gatos, or a class 1 path. Hwy 17 is technically legal to bike on or walk, but it's pretty much a death wish as there is no shoulder, and the 50mph speed limit is not even followed by big rigs (and they have a 35mph speed limit)

I guess I would use the trail and plead that I have no option. Of course I would be respectful and don't expect to get into an accident of my own doing so I feel it isn't a problem. I just don't want a ranger flagging me down because he knows it's a category 3 bike even if I'm only going 20mph. Just a bunch of bull I don't want to deal with especially if I need to commute a couple years to pay for it.

I can't wait until our bike paths double in size and bikes will have their own lane. Motorcycles need their own lane left of fast lane too. Things need to change, too many people around here!

↪ **COURT RYE** EBR

November 13, 2015

REPLY

Yeah, I believe we will see many things change in the next five and ten years with the introduction of self-driving cars... way fewer cars on the road, fewer people owning, fewer police patrolling roads with speed traps and profiling. People will still want independent and healthy ways to get around and ebikes and electric cycles may grow in popularity. I used to live in Los Gatos by the way, beautiful area :)

RANDY STORTROEN

November 24, 2015

REPLY

This move by the bike lobby is "better than a poke in the eye with a sharp stick," as the saying goes, but it is far from adequate. Limiting technological innovation within the platform is nonsense, and unprecedented in the transportation sector. Speed limits on roads govern motorists who purchase vehicles freely that are capable of speeds 10x legal limits, and more. There is no reason to believe speed limits on infrastructure for bicycles will be less effective.

MICHAEL

January 26, 2016

REPLY

Has anyone considered doing the sums? A cyclist's speed of 20 MPH is equivalent to falling off a one-story building if he hits something solid. At 25 MPH it would be the same as jumping off a two-story building (20.5 ft). A crash at 30 MPH makes for a bone-crunching splat landing as if he jumped from a three-story building (30 ft)... In comparison a driver in a car has the protection of his car, seat belt and air bags. A racing driver has a double harness and a complete helmet... A bicyclist has exactly what in his favor?

DEREK

June 4, 2016

REPLY

Typo: severe is spelled "sever"

↪ **COURT RYE** EBR

June 6, 2016

REPLY

Great catch Derek! I've fixed it and just wanted to say thanks ;)

MEGAN

July 2, 2016

REPLY

I have a bad hip and knee and need a Class 2 electric bike (pedal assist isn't a good option as the slightest effort will trash my hip). I want to be able to ride bikes with my husband and friends in areas where mopeds/scooters aren't allowed. I'm 5'11" about 145 lbs. I can't seem to find an easy way to figure out which bikes are Class 2 and, of those, which are most recommended. Thoughts? I appreciate any guidance very much.

↪ **COURT RYE EBR**

July 5, 2016

REPLY

Hi Megan! Sorry to hear about your hip... I can see why having a throttle would be nice. The advanced search options here let you choose different drive modes and you could check twist throttle and trigger throttle to get the results for all Class 2 reviews. I could be more specific about ones I like if you share your ride style (more active forward, semi-upright or relaxed cruiser) along with your budget and maybe what kind of terrain you'll be going on (road, sidewalks, trails or mountain?) I'm going to take a wild guess here that this is mostly neighborhood around town riding on bike trails and that you want something comfortable... Consider any of the Pedego or E-Lux models and possibly Magnum. I believe they all offer throttle mode :)

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Model Year

2015, 2016

Price Range

\$0 (0 €)

\$38,500 (36,190 €)

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