

US Consumer Product Safety Commission

Log of Meeting

Subject: PeopleForBikes presentation on Lithium Battery Safety for ebikes

Date: January 4, 2023

Location: WebEx video conference

Prepared By: Joel Recht, jrecht@cpsc.gov

CPSC Staff attendees:

Joel Recht, Mark Kumagai, Caroleene Paul, Andrew Trotta, Doug Lee, Howard Tarnoff, Joseph Kessler, Stephen Hopkins, Beverly Kohen

PeopleForBikes attendees:

Matt Moore, Policy Counsel – PeopleForBikes, Ash Lovell, Electric Bicycle Policy and Campaigns Director – PeopleForBikes, Jennifer Naeger, Vice President & General Counsel – Trek, Jeff Jambois, Sr. Electrical Compliance Engineer – Trek, Bob Margevicius, Executive Vice President – Specialized, Peter Kerle, Assistant General Counsel – Specialized, Joseph Tiller, Chief Administrative Officer & General Counsel – Specialized, Larry Pizzi, General Manager - Alta Cycling Group, Erika Jones, Outside Counsel, PeopleForBikes

Other public attendees:

David Cabanban, Future Velo; Ted Marks, unaffiliated; Doug Davis, Bicycle-evolution; Steve Hanson, SWH Law; Jay Townlay, Human Powered Solutions; Cheryl Falvey, Crowell

Notes:

Matt Moore for PeopleForBikes presented the slides on the following pages. CPSC staff expressed that it is important to take a system approach to ensure that ebike batteries, motors and chargers all work safely together and are tested together as a system.

# E-mobility Product Safety

January 4, 2022

# Agenda

1. Introduction to PeopleForBikes
2. Overview of E-mobility Safety
3. E-mobility Battery Pack Safety Standard: UL 2271
4. Issues With Certification to UL 2849
5. The Three-Class System and “Out of Class” Products
6. De Minimis Entry of E-mobility Products

# 1. Introduction to PeopleForBikes

PeopleForBikes (PFB) is the sole trade association representing the U.S. bicycle industry. In 2019 the Bicycle Product Suppliers Association (BPSA) merged with PFB to create the largest advocacy organization for cycling.

- 320 bicycle business members
- 1.4 million grassroots advocates

We work to grow participation in bicycling by advancing good policy and safe infrastructure in the U.S.

The U.S. bicycle industry contributes \$88 billion annually to our economy and employs more than 780,000 Americans.

# Attendees

Erika Z. Jones, Partner, Mayer Brown

Jennifer Naeger - General Counsel, Trek

Jeff Jambois - Senior Electrical Compliance Engineer, Trek

Bob Margevicius - Executive Vice President, Specialized

Joseph Tiller - Chief Administrative Officer and General Counsel, Specialized

Peter Kerle - Asst. General Counsel, Specialized

Larry Pizzi - General Manager, Alta Cycling Group

Ash Lovell - Electric Bicycle Policy and Campaign Director, PeopleForBikes

Matt Moore - Policy Counsel, PeopleForBikes

## 2. Overview of E-mobility Battery Safety

- The September, 2022 CPSC Micromobility Product-Related Deaths Injuries and Hazards report listed “zero” reported fatalities from fire hazards associated with E-bikes from 2017-2021
- CPSC In-depth investigations found four fatalities from E-bike related fires
- NYFD stated in hearing testimony that in 2022 there were 191 e-mobility related fires, 140 injuries and six deaths in the city as of 11/14/22, including 38 injuries in a high rise fire
- Two NYC deaths are known to be related to “refurbished” batteries
- Investigation by NYFD is ongoing, but they are having difficulty determining the type/brand of mobility device used and the exact cause of these fires

## 2. Overview of E-mobility Battery Safety

Causes cited in NYC hearing testimony and media reports:

- Battery overcharging
- Use of wrong or incompatible chargers
- Use of reconditioned/refurbished/modified batteries
- Aftermarket batteries without quality assurance that lack a protective battery management system
- Charging multiple batteries with power strips
- Wear and tear from heavy use or damaged batteries
- Illegal repair operations in residential buildings
- Economic circumstances of delivery workers
- Lack of education on hazards and safe charging

### 3. E-mobility Battery Pack Safety Standard: UL 2271

- Applies to battery packs for “all light electric vehicles”
- Same standard can be used across all current and future e-mobility products (UL 2271 and UL 2580 are within UL 2272)
- Specifically covers ***the battery pack*** - the primary design-related focus for preventing e-mobility fires
- More widely used than UL 2849 and likely much faster to implement, if not being used already
- Less expensive - covers multiple products within a brand
- Would cover aftermarket and “conversion kit” battery packs
- Battery packs could easily be marked to identify them as compliant



## 4. Potential Issues With ANSI/CAN/UL 2849: 2022

UL 2849 is a relatively new standard and there is confusion about its exact scope.

**UL 2849 is an electrical system standard, it covers the drive system, not the complete electric bicycle:**

### 1 Scope

1.1 This Standard covers **the electrical system** of eBikes powered by a lithium-based, rechargeable battery. EBikes include both Electrically Power Assisted Cycle (EPAC – pedal assist) and non-pedal assist eBikes.

UL Solutions perpetuates the idea that “electric bicycles” can be certified under UL 2849 and UL will issue a “bicycle” certification despite the clear limitation on the scope of the standard. A “complete” bicycle standard was rejected in standard development.

## 4. Potential Issues With ANSI/CAN/UL 2849: 2022

- There may be laboratory scheduling and capacity issues as UL 2849 is fairly extensive
- UL 2849 certification and maintenance costs can be quite high due to audit requirements that are not in UL 2271 or other mobility device safety standards. This could favor larger businesses over smaller businesses in the market
- Any material change to any part of the drive system requires recertification that will delay production and time to market
- Requiring certification to UL 2849 creates a higher burden on manufacturers of electric bicycles than e-scooters or hoverboards, historically a greater source of battery fires
- PFB is unaware of any evidence that certification of drive systems to UL 2849 would reduce battery fires, as opposed to certification of battery packs to UL 2271

## 4. Potential Issues With ANSI/CAN/UL 2849: 2022

- Many electric bicycles have battery, charger and motor components tested to other standards (such as ANSI/CAN/UL 2271)
- Reliance on UL 2849 has the potential to confer market power on a few makers of certified systems who were involved in development of UL 2849 and are now actively advocating for its adoption
- Many manufacturers choose to customize the drive system of their electric bicycles to provide market differentiation or to solve sourcing issues
- **UL 2849 does not cover aftermarket/third party battery packs: a recognized root cause of e-mobility battery fires**

## Proposal: Modify the December 20, 2022 Enforcement Letter

**Recommendation:** PeopleForBikes respectfully suggests the CPSC consider accepting testing and/or certification of e-mobility battery packs to ANSI/CAN/UL 2271 as sufficient to demonstrate the safety and compliance of e-mobility devices, including electric bicycles.

The CPSC should also extend this universal requirement to all types of micromobility products under its jurisdiction, including aftermarket and 3rd party battery packs and “conversion kits” with lithium ion batteries.

This is the most cost effective, expeditious and fair approach to addressing battery fires caused by low-quality, untested and unsafe battery packs for these devices.

## 5. The Three-Class System and “Out of Class” Products

PeopleForBikes (and the BPSA) have worked for several years to lobby for state laws governing capability and operation of electric bicycles by drafting a Model Law that creates three classes of electric bicycles.

All three classes fall within the definition of “electric bicycle” in 16 C.F.R. Section 1512.2(a)(2) in that: (1) they have electric motors of less than 750W and (2) their speed ***when powered solely by such a motor*** is less than 20 mph.

During this time, numerous companies have entered the e-mobility space with a variety of products that are not “electric bicycles” due to power or speed, but look like electric bicycles and are marketed as such.

# Three-Class Electric Bicycle Definition:

(1) “Electric bicycle” shall mean a bicycle equipped with fully operable pedals, a saddle or seat for the rider, and an electric motor of less than 750 watts that meets the requirements of one of the following three classes:

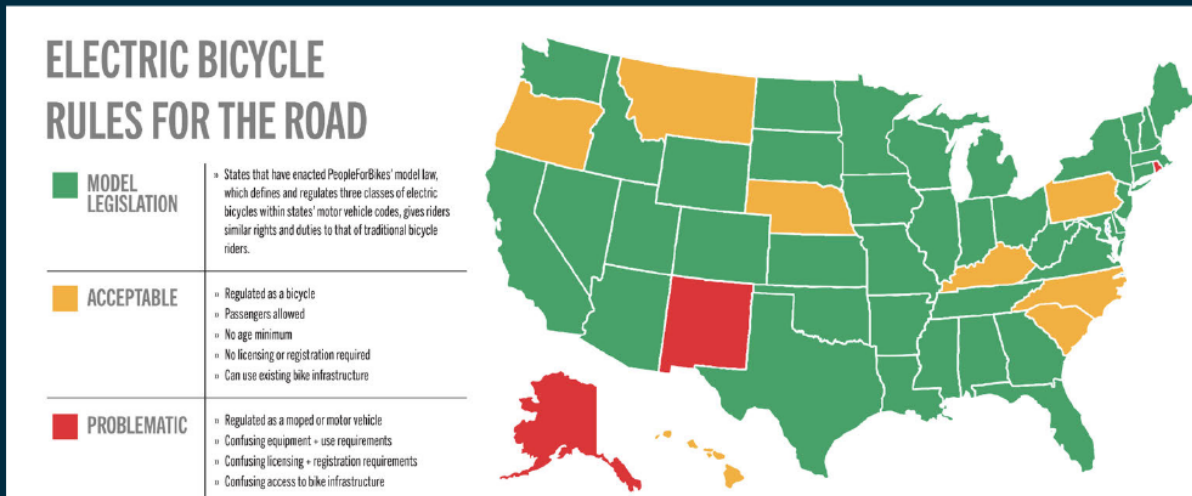
(a) “Class 1 electric bicycle” shall mean an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour.

(b) “Class 2 electric bicycle” shall mean an electric bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour.

(c) “Class 3 electric bicycle” shall mean an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.

Source: PeopleForBikes' [model electric bicycle legislation](#)

# E-Bike Laws Across the U.S.



In addition to 39 states with a version of our model e-bike legislation, the Bipartisan Infrastructure Law amended 23 U.S.C. § 217 to include the three class electric bicycle definition.







# Exclusive: Full specs leaked for the 45 mph ONYX CTY2 electric moped

[Micah Toll](#)

- Apr. 8th 2022 5:36 am PT

[@MicahToll](#)

When the bike first launched, most of the specs were a mystery.

That's largely because ONYX and electric moped companies like it walk a legal tight rope strung over a gray area-sized swimming pool teeming with ill-defined sharks.

Essentially, these high-power electric mopeds ship as street-legal electric bicycles, usually meaning a limit of 750W (1 hp) of power and 20-28 mph speeds (32-45 km/h).

A user-perform modification can usually unlock their full potential, with the implication being that the user then takes responsibility. The bikes include serial numbers that can sometimes be used to register them as moped-class vehicles in some US states, though many simply follow the "better to ask for forgiveness than permission" doctrine and fly under the radar.

## 5. PeopleForBikes Is Seeking Solutions + Support

We have discussed this with NHTSA and requested that they issue an enforcement letter regarding their regulations and their application to these products, and have provided education to our members on the differences between “electric bicycles” and products that are regulated by NHTSA as motor vehicles.

### **Recommendations:**

- (1) We ask that the CPSC formally recognize the Three-Class System and state that electric bicycles that meet one of the three classes defined therein are regulated as “electric bicycles” as defined in 16 CFR 1512.2(a)(2).
  
- (1) We also encourage the CPSC to work with NHTSA and PeopleForBikes to bring additional clarity to this area to avoid consumer confusion, and hopefully, accidents, injuries and deaths from non-compliant products with excessive power and speed that they may inadvertently purchase.

## 6. Addressing De Minimis Issues

Investigation and media reports point to low-cost e-mobility products and aftermarket battery packs as being implicated in the increase in battery fires.

- Such products are currently being sold directly to consumers without the manufacturer, importer, or distributor being required to certify their compliance with any safety standard
- Under 19 USC 1321 and current 'de minimis' rules, individual products valued at under \$800 (including many e-mobility devices and 3rd party batteries) are imported into the United States without import entry documentation.

Regrettably, the CPSC lacks the resources to monitor the millions of de minimis shipments that occur each year, and limited sampling that has occurred has found a high percentage of regulatory violations.

<https://www.cpsc.gov/s3fs-public/CPSC-Report-to-Congress-Consolidated-Appropriations-Act-Port-Surveillance.pdf?iYwrKt8RXocIVYSMoXm5uiL7VfltQIIZ>

# Congress Must Address De Minimis Issues

PeopleForBikes intends to ask Congress to act to exclude e-mobility devices using lithium ion batteries and replacement battery packs for such devices from the de minimis rule (like alcohol and tobacco) so that these products cannot be imported without the importer of record providing documentation of compliance with safety standards.

Without closing this important regulatory loophole, untested, non-compliant and unsafe devices and batteries will continue to be imported into the United States with predictable and tragic results.

We respectfully request that the CPSC work with U.S. Customs and PeopleForBikes to support these efforts.

# QUESTIONS?

Contact Information:

Matt Moore  
Policy Counsel  
PeopleForBikes

[matt@peopleforbikes.org](mailto:matt@peopleforbikes.org)