



## CONSUMER PRODUCT SAFETY COMMISSION

### 16 CFR Part 1512

[CPSC Docket No. CPSC-2024-0008]

### Electric Bicycles; Advance Notice of Proposed Rulemaking; Request for Comments and Information

**AGENCY:** Consumer Product Safety Commission.

**ACTION:** Advance notice of proposed rulemaking.

**SUMMARY:** The Consumer Product Safety Commission (CPSC or Commission) is considering developing a rule to address the risk of injury associated with electric bicycles (e-bikes). This advance notice of proposed rulemaking (ANPR) initiates a rulemaking proceeding under the Consumer Product Safety Act (CPSA) and the Federal Hazardous Substances Act (FHSA). We invite comments concerning the risk of injury associated with mechanical hazards of e-bikes, potential regulatory alternatives, the economic impacts of various approaches, existing voluntary standards, and plans to develop new standards to address these risks.

**DATES:** Comments must be received by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** Submit comments, identified by Docket No. CPSC-2024-0008, by any of the following methods:

*Electronic Submissions:* Submit electronic comments to the Federal eRulemaking Portal at: <http://www.regulations.gov>. Follow the instructions for submitting comments. Do not submit through this website: confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public. CPSC typically does not accept comments submitted by e-mail, except as described below.

*Mail/Hand Delivery/Courier/Confidential Written Submissions:* CPSC encourages you to submit electronic comments by using the Federal eRulemaking Portal. You may, however,

submit comments by mail, hand delivery, courier to: Office of the Secretary, Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814; telephone (301) 504-7479. If you wish to submit confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public, you may submit such comments by mail, hand delivery, or courier, or you may email them to: [cpsec@cpsec.gov](mailto:cpsec@cpsec.gov).

*Instructions:* All submissions received must include the agency name and docket number for this notice. CPSC may post all comments without change, including any personal identifiers, contact information, or other personal information provided, to: <http://www.regulations.gov>. Do not submit through this website: Confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public. If you wish to submit such information, please submit it according to the instructions for mail/hand delivery/courier/confidential written submissions.

*Docket:* For access to the docket to read background documents or comments received, go to: <http://www.regulations.gov>, insert docket number CPSC-2024-0008 into the “Search” box, and follow the prompts.

**FOR FURTHER INFORMATION CONTACT:** Lawrence Mella, Directorate for Engineering Sciences, U.S. Consumer Product Safety Commission, 5 Research Place, Rockville, MD 20850; telephone (301) 987-2537; fax (301) 869-0294; e-mail [lmella@cpsec.gov](mailto:lmella@cpsec.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. Background**

The purpose of this ANPR is to collect information related to potential regulatory requirements to address the risk of injury associated with mechanical hazards of e-bikes.<sup>1</sup>

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<sup>1</sup> On March 5, 2024, the Commission voted (4–0) to publish this advance notice of proposed rulemaking.

Electrical hazards such as those related to batteries are not within the scope of this ANPR. CPSC is separately working to address those hazards for e-bikes and other micromobility products.<sup>2</sup>

An e-bike is a bicycle equipped with an electric motor. E-bikes are sold and marketed for adults and children. CPSC is aware of an increasing trend of injuries and deaths from falls and collisions associated with e-bikes. CPSC estimates there were 53,100 emergency department (ED)-treated injuries from 2017 to 2022 associated with e-bikes.<sup>3</sup>

Currently, CPSC has a mandatory standard for bicycles and low-speed e-bikes under the FHSA at 16 CFR part 1512. ASTM also has voluntary standards for bicycles, but they are not specific to e-bikes. Existing international standards for e-bikes under the International Organization for Standardization (ISO) and European Standards (EN) only apply to a subset of e-bike products.

The Commission invites the public to review this ANPR and submit information and comments that would assist the Commission as it considers regulatory options to reduce the risk of injury associated with mechanical hazards of e-bikes.

## **II. Statutory Authority**

CPSC regulates bicycles under the FHSA (15 U.S.C. 1261 *et. seq.*), at 16 CFR part 1512, *Requirements for Bicycles*.<sup>4</sup> In 2002, Congress added to the CPSA section 38, which states that low-speed e-bikes are subject to CPSC’s FHSA bicycle regulation. 15 U.S.C. 2085(a). Pursuant to section 38, the Commission amended its bicycle regulation so that the existing requirements for solely human powered bicycles also apply to low-speed e-bikes. 68 FR 7,072 (Feb. 12,

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<sup>2</sup> U.S. Consumer Product Safety Comm’n, *Operating Plan Fiscal Year 2024* (Nov. 2023) <https://www.cpsc.gov/content/FY-2024-Operating-Plan>.

<sup>3</sup> U.S. Consumer Product Safety Comm’n, *Micromobility Products-Related Deaths, Injuries, and Hazard Patterns: 2017 – 2022*, (Sept. 2023), <https://www.cpsc.gov/Safety-Education/Safety-Education-Centers/Micromobility-Information-Center>.

<sup>4</sup> “Bicycle” is defined in the regulation as: “(1) A two-wheeled vehicle having a rear drive wheel that is solely human-powered; (2) A two- or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts (1 h.p.), whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph.” 16 CFR 1512.2(a).

2003); 16 CFR 1512.2(a). The Commission did not make any other changes or additions. *Id.* Section 38 defines a low-speed e-bike as a “two or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts (1h.p.), whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph.” 15 U.S.C. 2085(b), 16 CFR 1512.2(a)(2). Low-speed e-bikes that do not comply with 16 CFR part 1512 are “hazardous substances” under section 2(f)(1)(D) of the FHSA and are also “banned hazardous substances” under section 2(q)(1)(A) of the FHSA. 15 U.S.C. 1261(f)(1)(D), 1261(q)(1)(A), 16 CFR 1500.18(a)(12).

Section 38(c) of the CPSA allows the Commission to promulgate new or revised requirements as necessary and appropriate for low-speed e-bikes by amending its current FHSA regulation. The Commission may also, under the FHSA, adopt separate requirements for children’s e-bikes. 15 U.S.C. 1261(f)(1)(D), 1262(e). Section 3 of the FHSA specifies the procedure the Commission follows to issue FHSA regulations. First, the Commission may commence the rulemaking by issuing an ANPR, which must: identify the article or substance to be regulated and the nature of the risk of injury; summarize regulatory alternatives; describe relevant existing standards and explain why the Commission preliminarily believes that they do not eliminate or adequately reduce the risk of injury; and invite comments or suggested standards from the public. 15 U.S.C. 1262(f). Then, after considering any comments submitted in response to the ANPR, the Commission may issue a proposed rule in accordance with section 3(h) of the FHSA and a final rule under section 3(i) of the FHSA. 15 U.S.C. 1262(h), (i). Alternatively, the Commission may initiate the rulemaking by issuing a Notice of Proposed Rulemaking (NPR) in the first instance. *Id.* 1262(h).

The Commission also has authority to regulate e-bikes under the CPSA as “consumer products.”<sup>5</sup> 15 U.S.C. 2052(a)(5). Any such regulation could include low-speed e-bikes, which

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<sup>5</sup> “Consumer product” is defined to include “any article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent or

are specifically designated to be consumer products by section 38(a) of the CPSA, 15 U.S.C. 2085(a), as well as e-bikes that fall outside section 38 (i.e., higher speed e-bikes), as long as they are not “motor vehicles” under 49 U.S.C. 30102(a)(7).<sup>6</sup> *Id.* 2052(a)(5)(C). Alternatively, the Commission could issue a CPSA standard specific to children’s e-bikes.

Sections 7 and 9 of the CPSA set out the procedure the Commission must follow to issue a consumer product safety standard under section 38. 15 U.S.C. 2056, 2058. As in a FHSA rulemaking, the Commission has the option of beginning with an ANPR that identifies the product and the nature of the risk of injury associated with the product, summarizes the regulatory alternatives considered by the Commission, and provides information about any relevant existing standards and a summary of the reasons the Commission believes they would not eliminate or adequately reduce the risk of injury. *Id.* 2058(a). Any ANPR also must invite comments concerning the risk of injury and regulatory alternatives and invite the public to submit an existing standard or a statement of intent to modify or develop a voluntary standard to address the risk of injury. *Id.* Having begun with this ANPR, the Commission will next decide whether to proceed with a proposed rule under section 9(c) of the CPSA and a final rule under section 9(f) of the CPSA. 15 U.S.C. 2058(c), (f).

### **III. The Product**

An e-bike is a bicycle with an electric motor. An e-bike may be powered partially or fully by the motor. Normally, the bicycle is equipped with pedal assist, a throttle, or both. An e-bike with pedal assistance activates the electric motor while the rider is pedaling to provide more torque than the rider would normally create on their own. An e-bike with a throttle activates the electric motor when the rider depresses the throttle to propel the bike forward without relying on pedal assistance. Generally, the throttle is a thumb-operated device mounted on the handlebar.

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temporary household or residence, a school, in recreation, or otherwise; but such term does not include—“motor vehicle” as defined by 49 U.S.C. 30102(a)(7). 15 U.S.C. 2052(a)(5).

<sup>6</sup> A “motor vehicle” is defined as “a vehicle driven or drawn by mechanical power and manufactured primarily for use on public streets, roads, and highways, but does not include a vehicle operated only on a rail line.” 49 U.S.C. 30102(a)(7).

Similar to non-powered bicycles, e-bikes are generally sold and marketed for specific applications, such as use in a city (on sidewalks), for commuting, and for off-road use on bike paths, and trails. E-bikes currently must meet the requirements of 16 CFR part 1512 if they meet the definition of a “low-speed electric bicycle” in 15 U.S.C. 2085(b) and “bicycle” in 16 CFR 1512.2(a)(2).

As defined in part 1512.2(a)(2), a low-speed e-bike’s motor is restricted to less than 750 watts (1 h.p.) and to a “maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph.” However, this definition does not specify a limit on the speed for a low-speed e-bike when it is pedal-assisted. Other bicycles marketed as e-bikes have motors of 750 watts or more and can power the e-bike at speeds of 20 mph or more without pedal assistance. CPSC has the authority to regulate all these products as long as they are not “motor vehicles,” as defined at 49 U.S.C. 30102(a)(7) (*i.e.*, a vehicle driven or drawn by mechanical power and manufactured primarily for use on public streets, roads and highways).

Some e-bikes are marketed and intended for use by children. These include electric balance bikes, which are a type of e-bike mostly marketed for younger children. Although an electric balance bike does not have pedals, the electric motor assists the rider with propulsion, which is accomplished by the rider pushing their feet against the ground instead of pedaling. These e-bikes are designed to help children learn balance and coordination.

The scope of this rulemaking is limited to e-bikes and does not include gas powered bicycles and non-powered bicycles, or battery powered ride-on toys subject to the mandatory Toy standard.<sup>7</sup>

#### **IV. Risk of Injury or Death**

##### *A. Data on Non-Fatal Injuries*

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<sup>7</sup>ASTM F963-17, *Standard Consumer Safety Specification for Toy Safety*. 16 CFR part 1250.

CPSC reviewed data from its report, “Micromobility Products-Related Deaths, Injuries, and Hazard Patterns: 2017 – 2022,”<sup>8</sup> (2023 Micromobility Report) to identify incidents involving a mechanical hazard associated with e-bike use. In the report, based on the incident data from the National Electronic Injury Surveillance System (NEISS),<sup>9</sup> staff estimated 53,100 injuries associated with riding e-bikes, between 2017 and 2022. Staff estimated that e-bike related incidents comprise 15 percent of the overall micromobility injury estimate in that timeframe. Staff estimated that ED-treated injuries for e-bikes increased from 3,538 to 24,335 injuries from 2017 to 2022.

Using the 2023 Micromobility Report, staff also identified 30 other incidents associated with e-bikes that were reported through the Consumer Product Safety Risk Management System (CPSRMS).<sup>10</sup> Most of these incidents involved crank arm and/or pedal detachments and tire failures. Some incidents involved brake failures and wheel detachments. A few included incidents involved rider stability, broken frame, motor shutoff, unintended acceleration, and an issue with the chain and throttle.

### *B. Fatality Data*

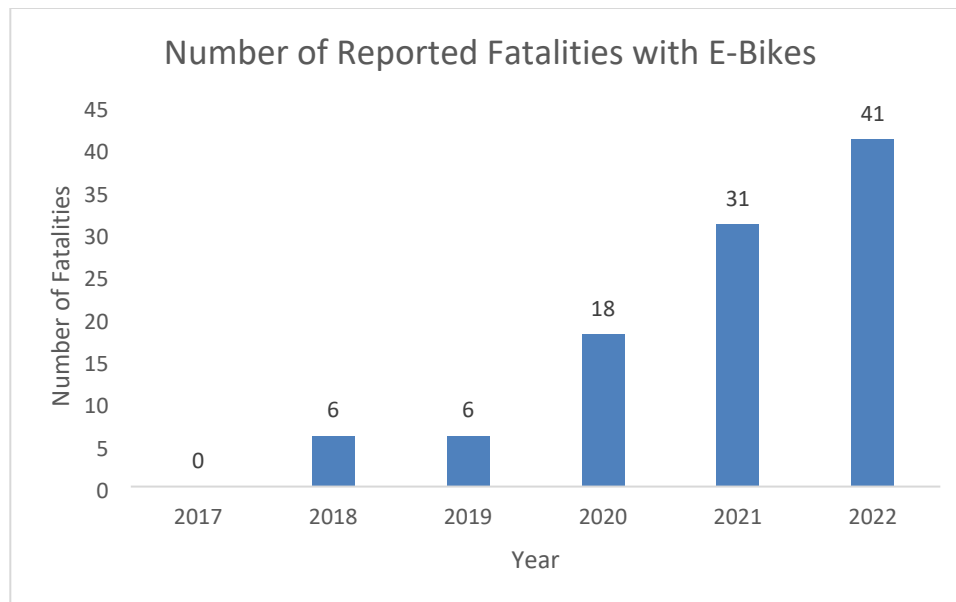
CPSC is aware of 100 fatalities associated with mechanical hazards involving e-bikes that occurred from 2017 through 2022, as shown below. These e-bike fatalities increased from zero deaths in 2017 to 41 deaths in 2022.

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<sup>8</sup> U.S. Consumer Product Safety Comm’n, *Micromobility Products-Related Deaths, Injuries, and Hazard Patterns: 2017 – 2022*, (Sept. 2023), <https://www.cpsc.gov/Safety-Education/Safety-Education-Centers/Micromobility-Information-Center>.

<sup>9</sup> NEISS is the source of the injury estimates; it is a statistically valid injury surveillance system. NEISS injury data are gathered from emergency departments of about 100 hospitals, with 24-hour emergency departments and at least six beds, selected as a probability sample of all U.S. hospitals. The surveillance data gathered from the sample hospitals enable the CPSC to make timely national estimates of the number of injuries associated with specific consumer products.

<sup>10</sup> CPSRMS includes data primarily from three groups of sources: incident reports, death certificates, and in-depth follow-up investigation reports. A large portion of CPSRMS consists of incident reports from: consumer complaints; media reports; medical examiner or coroner reports; retailer or manufacturer reports (incident reports received from a retailer or manufacturer involving a product they sell or make); safety advocacy groups; law firms; and federal, state, or local authorities. It also contains death certificates that CPSC purchases from all 50 states, based on selected external cause of death codes (ICD-10). The third major component of CPSRMS is the collection of in-depth follow-up investigation reports. Based on the incident reports, death certificates, or NEISS injury reports, CPSC Field staff conduct in-depth investigations (on-site, telephone, or online) of incidents, deaths, and injuries, which are then stored in CPSRMS.



**Number of Reported Fatalities Associated with E-Bikes from 2017 to 2022.**

Of the total fatalities, only 16 incidents had helmet information. In 13 of these 16 incidents, the rider was not wearing a helmet, and in three of the 16 incidents, the rider was reported to be wearing a helmet. Staff's review of the 100 fatalities indicates that most involved collisions with motor vehicles, and some involved falls and control issues including collision with fixed objects or the curb. Others involved collision with pedestrians, which include incidents with e-bike rider deaths and pedestrian deaths. One fatality involved rider ejection and impact with the pavement.

### *C. Hazard Patterns*

The data on fatal and non-fatal incidents indicate that collisions and falls are the predominant hazards associated with e-bikes. Based on this data, CPSC preliminarily determines that areas of e-bike design that may contribute to a risk of injury due to collisions and falls include the following:

- conspicuity of e-bikes to pedestrians and operators of other vehicles (*e.g.*, visibility and audibility of the rider and e-bike);
- size and weight of the e-bike and rider (*e.g.*, ease of maintaining balance and maneuvering the e-bike);
- speed and acceleration of e-bikes (*e.g.*, how propulsion of the e-bike affects the rider's control of the vehicle, how it relates to their expectations, and whether the rider is subject to situations that involve a higher level of risk due to the speed and



acceleration);

- braking of e-bikes (*e.g.*, impacts of heavier product weight and frequency of high-speed braking on braking performance);
- bicycle component durability (*e.g.*, impacts of heavier product weight and reasonably foreseeable use on brake component wear, pedal/crank arm assemblies, and wheel/tire assemblies);
- structural integrity of e-bike frames, especially folding bikes (*e.g.*, impacts of heavier product weight and how reasonably foreseeable use affects the frame); and
- helmet performance (*e.g.*, impacts at high-speed).

## **V. Existing Safety Standards**

### *A. Mandatory Standard*

CPSC codified its mandatory standard for bicycles, part 1512, in 1974 (39 FR 26100 (Jul. 16, 1974)), with amendments in 1978 (43 FR 60034 (Dec. 22, 1978)), 1980 (45 FR 82625 (Dec. 16, 1980)), 1981 (46 FR 3203 (Jan. 14, 1981)), 1995 (60 FR 62989 (Dec. 8, 1995)), 2003 (68 FR 7072 (Feb. 12, 2003)), (68 FR 52690 (Sept. 5, 2003)), and 2011 (76 FR 27882 (May 13, 2011)). Part 1512 includes mechanical requirements for bicycles and low-speed e-bikes. Therefore, low-speed e-bikes are currently required to meet the same mechanical requirements as non-electrical bicycles which include:

- 1512.5 Braking system
- 1512.6 Steering system
- 1512.7 Pedals
- 1512.8 Drive chain
- 1512.10 Tires
- 1512.11 Wheels
- 1512.16 Reflectors

Part 1512 establishes the minimum performance requirements that all bicycles must meet to ensure an adequate braking stopping distance and to prevent product failures that may lead to a

hazard such as a loss of control. As noted, part 1512 does not account for the impacts associated with the e-bikes solely powered by electric motors.

#### *B. U.S. Voluntary Standards*

No U.S. voluntary standards have specific mechanical requirements applicable to e-bikes. ASTM standards include requirements for bicycle frames and forks based on usage of the bicycle (on roads, trails, off-road trails, etc.) but do not have specific requirements for e-bikes because the ASTM definition of bicycle is limited to those “solely human powered,” as described in ASTM F2043-13 (2018), *Standard Classification for Bicycle Usage*.

ASTM F2680 (2017), *Standard Test Methods and Specifications for Bicycle Manually Operated Front Wheel Retention Systems*, and ASTM F2793 (2023), *Standard Specification for Bicycle Grips*, do not specify a bicycle category; therefore, the requirements in these standards may apply to e-bikes. However, because these standards were developed solely for human-powered bikes, they may not be adequate to address characteristics that are unique to e-bikes.

#### *C. International Voluntary Standards*

The applicable international standard for e-bikes is the International Organization for Standardization (ISO)’s ISO/TS 4210-10:2020, *Cycles – Safety Requirements for Bicycles – Part 10: Safety requirements for electrically power assisted cycles (EPACs)*. The ISO standard specifies the safety and performance requirements for the design, marking, assembly, and testing of two wheeled electrically power assisted cycles (EPACs). ISO defines an EPAC as a cycle equipped with pedals and an auxiliary electric motor, which cannot be propelled exclusively by means of this auxiliary electric motor. An electrically power assisted bicycle is a pedal-assisted e-bike. The standard includes, but is not limited to the following mechanical requirements:

- 7.2 Brakes – Heat-resistance test
- 7.3 Handlebar and stem assembly – Lateral bending test
- 7.4 Handlebar stem – Forward bending test
- 7.5 Handlebar to handlebar stem – Torsional security test

- 7.6 Handlebar and stem assembly – Fatigue test
- 7.7 Frame – Impact test (falling mass)
- 7.8 Frame and front fork assembly – Impact test (falling frame)
- 7.9 Frame – Fatigue test with horizontal forces

CPSC is also aware of two European standards (EN) titled EN 15194:2017+A1:2023, *Cycles – Electrically power assisted cycles - EPAC Bicycles*, and EN 17404:2022, *Cycles – Electrically power assisted cycles – EPAC Mountain bikes*. The EN standards are intended to cover EPACs that have a maximum continuous rated power of 0.25 kW, which is progressively reduced and finally cut off as the EPAC reaches a speed of 25 km/h (15.5 mph), or sooner, if the cyclist stops pedaling. EN standards are intended to cover common significant hazards, hazardous situations, and other issues related to e-bikes by establishing minimum performance requirements. Both standards include but are not limited to the following mechanical requirements:

- 4.3.5 Brakes
- 4.3.6 Steering
- 4.3.7 Frames
- 4.3.8 Front fork
- 4.3.9 Wheels and wheel/tyre assembly
- 4.3.10 Rims, tyres and tubes
- 4.3.12 Pedals and pedal/crank drive system
- 4.3.19 Lighting systems and reflectors

#### *C. Adequacy of Existing Mandatory and Voluntary Standards in Addressing Injuries*

Based on the increasing injuries and fatalities associated with e-bikes, and hazards associated with collision and falls, the Commission preliminarily assesses that the current mandatory and voluntary standards do not eliminate or adequately reduce the risk of injury identified or associated with e-bikes.

Because the requirements in the existing mandatory standard were developed for non-powered bicycles that are lighter in weight than e-bikes, they are not likely to adequately address hazards associated with e-bikes. The mandatory standard, moreover, only covers e-bikes with fully operable pedals and powered by electric motors less than 750 watts and whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph.

Domestic voluntary standards do not apply to e-bikes or do not account for characteristics that are unique to e-bikes. As a result, domestic voluntary standards appear inadequate to address the mechanical hazards posed by e-bikes.

International standards do not cover e-bikes that can be exclusively propelled by an electric motor or e-bikes with a maximum speed over 15.5 mph. Therefore, international standards also appear inadequate to address the mechanical hazards posed by e-bikes.

## **VI. Regulatory Alternatives**

The Commission is considering one or more of the following alternatives to address the risk of injury associated with e-bikes:

### *A. Revised Mandatory Standard under the FHSA*

Under the FHSA, the Commission could amend part 1512 by specifying additional requirements that low-speed bicycles must meet. The FHSA also allows the Commission to regulate mechanical hazards associated with children's e-bikes as a "toy or other article intended for use by children." 15 U.S.C. 1262(e)(1). Therefore, the Commission also could issue a rule specifically for children's e-bikes, including electric balance bikes, under section 3(e)(1) of the FHSA or revise part 1512 to specify requirements for children's e-bikes, including electric balance bikes.

Under the FHSA, the Commission must invite any person to submit to the Commission an existing standard or a portion of a standard as a proposed regulation under section 2(q)(1) or section 3(e) and (f) of the FHSA, or a statement of intention to modify or develop a voluntary

standard to address the risk of injury together with a description of a plan to modify or develop the standard. 15 U.S.C. 1262(f)(5), (6). If the Commission determines that any standard submitted in response to this invitation would eliminate or adequately reduce the risk of injury if promulgated (in whole, in part, or in combination with any other standard submitted to the Commission) as a regulation under the FHSA, the Commission may publish the standard, in whole, in part, or in such combination and with nonmaterial modifications, as a proposed regulation. 15 U.S.C. 1262(g)(1).

*B. Mandatory Standards under the CPSA*

Under sections 7 and 9 of the CPSA, the Commission could proceed with a rulemaking to establish product safety requirements for e-bikes to address the risk of injury associated with collision and fall hazards. 15 U.S.C. 2056(a). Such a standard could regulate higher speed e-bikes, including electric balance bikes, that are outside the definition of a “low-speed electric bicycle” in 15 U.S.C. 2085(b) and that are not motor vehicles under 49 U.S.C. 30102(a)(7). The Commission could also issue a product safety standard specifically for children’s e-bikes, including children’s electric balance bikes, as a separate set of requirements. For any mandatory rule, the Commission could issue a rule that focuses on performance requirements only, or both performance and labeling requirements and/or instructions to address collision and fall hazards associated with e-bikes.

The Commission could issue a rule under the FHSA or the CPSA or under both statutes. The Commission is interested in comments on the approaches described above, as well as any other suggestions to develop a mandatory standard to address the risk of injury associated with e-bikes. To issue a mandatory standard, the Commission would need to assess the costs and benefits of the requirements. 15 U.S.C. 2058(f).

*C. Reliance on Voluntary Standards*

Alternatively, the Commission could continue to work to develop more effective voluntary standard requirements to address injuries associated with e-bikes. However, as stated

in section V of this preamble, the Commission preliminarily determines that the existing standards do not adequately address hazards unique to e-bikes.

#### *D. Non-Regulatory Actions*

The Commission could take no regulatory action and instead continue to rely on corrective actions under the FHSA or the CPSA. For example, under section 15 of the FHSA, the Commission could continue to enforce its current FHSA low-speed e-bike regulation.

The Commission could also continue to rely on recalls, both voluntary and mandatory, to address hazards associated with e-bikes instead of promulgating a mandatory rule under the FHSA or section 15 of the CPSA. However, recalls are not likely to be as effective at reducing the risk of injury as a mandatory standard for several reasons. Recalls generally only apply to an individual manufacturer and product. Therefore, recalls are unlikely to address injuries that appear systematic, as they do for e-bikes. Product recalls occur only after consumers have purchased and used such products and have been exposed to the hazard to be remedied by the recall. Additionally, recalls can only address products that are already on the market and cannot prevent unsafe products from entering the market. To be effective, recalls also require consumer compliance.

#### *E. Public Education*

Finally, the Commission could issue news releases and other informational materials warning consumers about the hazards associated with e-bikes. As with recalls, this alternative is not likely to be as effective in reducing the risk of injury as a mandatory standard.

### **VII. Request for Comments**

This ANPR is the first step in a proceeding that could result in amended or new mandatory regulations to address mechanical hazards associated with e-bikes. For the purpose of these questions, e-bikes include electric balance bikes. The Commission requests comment on all aspects of this ANPR, and specifically requests comment regarding:

#### *A. Statutory Requirements*

In accordance with section 9(a) of the CPSA and section 3(f) of the FHSA, we invite comments on:

1. The risk of injury identified by the Commission, the regulatory alternatives being considered, and other possible alternatives for addressing the risk.
2. Any existing standard or portion of a standard that could be issued as a proposed regulation.
3. A statement of intention to modify or develop a voluntary standard to address the risk of injury identified in this notice together with a description of a plan (including a schedule) to modify or develop the standard.

*B. Information Specific to E-bikes*

4. Which e-bikes should the Commission include or exclude from the rulemaking and why?
5. How broadly should the Commission define e-bikes (beyond low-speed e-bikes) to reflect recent developments in the product category? For example, we can include all e-bikes except for those that meet the definition of a motor vehicle in 49 U.S.C. 30102(a)(7).
6. What are some relevant factors we should consider in the definition of an e-bike (e.g., weight, throttle capabilities, pedal-assist capabilities, speed governors, motor power (watts) and batteries).
7. What other definitions should the Commission consider? For example, currently there is an e-bike classification system adopted in some states and local jurisdictions. Is an existing or newly developed classification system for e-bikes appropriate for Commission regulations, and if so, how should CPSC regulations relate to the classification system?
8. Under the internationally recognized EN standard EPACs (i.e., e-bikes) are defined to have a “maximum continuous rated power of 0.25 kW, of which the output is

progressively reduced and finally cut off as the EPAC reaches a speed of 25 km/h (15.5 mph), or sooner, if the cyclist stops pedaling.” Is there any evidentiary basis for using this definition in a safety standard, and are there others in use elsewhere in the world that CPSC should consider as a model?

*C. Information on Usage and Incidents*

As e-bikes continue to grow in popularity, CPSC is refining its data collection and studies to analyze the incidents of injuries and fatalities associated with e-bikes. We invite you to submit comments and information concerning the following:

9. Studies, tests, or surveys performed to analyze e-bike usage, such as rider demographics, steering and handling, effects of braking and acceleration on control, frequency and duration of use, typical and maximum speeds, use terrains, use on wet surfaces, use in times of limited visibility, typical amount and weight of cargo, use with passengers, previous experience with bicycles, and use and efficacy of protective equipment or other protective technology that is integral to the e-bike.
10. Any studies or analyses of e-bike usage that would lead to riskier behavior in comparison to non-powered bikes, *e.g.*, use in traffic at higher speeds, accessibility to speed and hills.
11. The impact of the weight of an e-bike on its stability, including how it varies at different speeds and its effect on the potential risks of injury.
12. How does higher weight and speed of e-bike compared to a non-powered bicycle affect the potential for injury?
13. Studies or other available research efforts that contribute to the understanding of injury and mechanical hazard patterns (such as collisions, falls, rider behavior, control, speed, helmet usage, environment, etc.) and risks associated with e-bikes in the U.S. or in other countries where e-bikes are widely used.
14. What hazard patterns or stability concerns, if any, are particularly associated with



three-wheeled e-bikes?

15. What are the developmental capabilities of children to understand and operate e-bikes, including electric balance bikes, and how does that relate to maximum speeds of the products?
16. What are the injury risks associated with electric balance bikes and how should they be addressed?
17. Studies or other available research or information on conspicuity enhancements available for e-bikes or bicycles and their effectiveness in collision avoidance.
18. What distinguishes an off-road e-bike versus an on-road e-bike?
19. Do consumers use off-road e-bikes, capable of speeds over 28 mph, on road?

*D. Potential Requirements and Voluntary Standards*

20. E-bikes are currently required to meet the same mechanical requirements as non-electric bicycles. Are there aspects of e-bikes that require different regulatory requirements than those applicable to non-electric bicycles?
21. Do e-bikes, due to their heavier weight or other factors, need different performance requirements for braking, particularly for disc brakes, which are used in e-bikes but are not included in the current bicycle standards?
22. Do e-bikes need different frame or other component requirements than non-powered bicycles?
23. What different performance standards, if any, should be required for three-wheeled e-bikes?
24. What requirements, if any, should the Commission consider for conspicuity, such as lights or other visibility and audibility of e-bikes? If so, what factors should the Commission take into consideration?
25. Is it appropriate to have marking, labeling, instructional literature, and/or packaging requirements specific to e-bikes (especially for new riders)? If so, what are some

important points that the Commission should include?

26. What should the Commission consider setting, if any, as minimum and/or maximum limits for acceleration?
27. What, if any, product weight requirements or limitations should the Commission consider for e-bikes?
28. What, if any, maximum and minimum width for e-bike tires should the Commission consider for e-bikes?
29. E-bikes are widely promoted and even subsidized by communities seeking to encourage adoption of sustainable forms of transportation. What performance requirements and warnings can help protect the safety of consumers, especially new riders (including seniors) and parents who are purchasing e-bikes for children?
30. Are there any performance requirements that should be implemented specifically for children's e-bikes such as speed, power, brakes, structural integrity, and conspicuity? If so, what should the age ranges be for those requirements?
31. CPSC is aware of ASTM work item, ASTM WK88946, *New Specification for Electric Powered Balance Bike*. Do electric balance bikes need different performance requirements than other e-bikes?
32. Should there be requirements such as: maximum speed; speed, weight, and throttle capabilities; pedal assist capabilities; or speed governors?
33. Other than the types of requirements noted above, what performance requirements should be considered to mitigate e-bike injuries and deaths?
34. What technologies exist to protect e-bike riders before, during, or after a collision—and how do those technologies affect the risks to riders?
35. Should there be maximum speed requirements for e-bikes intended for off-road use?
36. Should there be different protective gear recommendations for e-bikes that are applicable to both children and adults, such as helmets?

37. What other domestic standards, state, and local requirements apply to e-bikes and how should the Commission assess the adequacy of any such standards?
38. What other international standards govern e-bikes and how do those standards compare to current U.S. voluntary standards and statutory requirements?

*E. Market Information*

39. What percentage or share of the market or how many products are solely human powered, low-speed e-bikes, versus higher speed e-bikes and children's e-bikes including electric balance bikes?
40. How prevalent are three-wheeled e-bikes as a percentage or share of the market?
41. Under the existing bicycle industry classification system for e-bikes, what is the breakdown of e-bikes sold (i.e., Class 1, 2, and 3)? What information is there on e-bikes outside of the classification system or on children's e-bikes?
42. What types of safety equipment are consumers purchasing with e-bikes?
43. How many additional manufacturer labor hours (if any) are required to assemble/install safety equipment (signal lights, taillights, headlights, reflectors)?
44. How much additional time (if any) is required to manufacture an e-bike as compared to a non-powered bike?
45. How many e-bike conversion kits are sold per year in the U.S.?
46. Are e-bikes with higher top speeds (over 28 mph) marketed for off-road use currently being used on public roads, streets, or highways?

*F. Economic Impacts*

47. What are the potential benefits of a rule that would require warnings or instructions specific to e-bikes?
48. What are the potential benefits of a rule that would establish additional performance requirements for low-speed e-bikes or new performance requirements for non-low speed e-bikes or specifically for children's e-bikes, including electric balance bikes?

49. What are the potential costs and benefits associated with a mandatory rule for e-bikes?
50. What is the potential impact on small entities of a rule based on the options presented above?
51. What is the typical difference in cost to produce solely human-powered bikes, low-speed e-bikes, higher speed e-bikes, and children's e-bikes?
52. What is the manufacturer's cost to produce various safety features, including research and development costs, and components?

Comments and other submissions should be submitted in accordance with the instructions provided above. All comments and other submissions must be received by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL]**.

Alberta E. Mills  
Secretary, Consumer Product Safety  
Commission

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