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The Honorable Susan McLain
Chairperson, House Interim Committee on Transportation
Oregon House of Representees
900 Court St. NE H-493
Salem, Oregon 97301

The Honorable Shelly Boshart Davis
Vice-Chair, House Interim Committee on Transportation
Oregon House of Representees
900 Court St. NE H-389
Salem, OR 97301

February 6, 2026

Dear Chairperson McLain and Vice-Chair Boshart Davis:

UL Solutions appreciates the opportunity to submit testimony on HB 4007. As electric assisted bicycles ("e-bikes") and powered micromobility devices become increasingly popular transportation options, it is critical that they meet product safety standards. We support legislative efforts to improve the safety of lithium-ion battery powered mobility products, and the recommendations provided herein are intended to strengthen the bill's approach to hazard mitigation by requiring third-party certification for e-bikes and powered micromobility devices to the applicable safety standards.

UL Solutions is a leading safety science company providing testing, inspection, certification, and related services to help our customers demonstrate compliance with standards for safety, security, and sustainability. Together with UL Standards and Engagement (ULSE) and UL Research Institutes (ULRI), we support the 131-year-old UL mission of working for a safer world. ULSE[1] develops safety standards, like those for micromobility products, that impact public safety around the world. ULRI conducts independent research into ongoing and emerging human safety risks.

Since 1985, we have performed testing, evaluation and certification for lithium-ion batteries and the product electrical systems they power. Our efforts to deliver safer innovation through applied research and new testing protocols were integral to the

[1] ULSE is the majority shareholder of outstanding UL Solutions common stock.

development of safety standards for lithium-ion batteries for micromobility applications (UL 2271), e-scooters and other micromobility devices (UL 2272), and e-bikes (UL 2849).[2]

Lithium-ion battery powered micromobility products and e-bikes can present a fire safety risk. Oregon firefighters have had firsthand experience with fires linked to these devices,[3] joining other jurisdictions which have seen a surge in these incidents over the past several years. In New York City, the fire department has reported over 1000 investigations of fires associated with micromobility devices from 2019 to 2025. [4] These fires caused 540 injuries and 35 fatalities. The Toronto Fire Department has called e-bikes and e-scooters "the largest growing fire safety risk in the city," with 29 micromobility fires so far this year, compared to 24 and 2024, and 3 in 2023.[5] UL Solutions has also tracked lithium-ion battery related fires and incidents globally, drawing data from media reports, fire department data, and other sources. Through this, we have identified 1,982 injuries associated with e-transport device battery incident and 340 fatalities as of this date.[6]

These fires are typically the result of thermal runaway in the lithium-ion battery. Thermal runaway is a fast, violent, self-propagating reaction which can lead to intense fires that are difficult to extinguish. When this reaction occurs, the battery cell's temperature rises uncontrollably, triggering the release of flammable toxic gases, as well as sparks and flames. It can also trigger deflagrations--an explosion-like phenomenon that violently ejects burning material. In one full-scale fire study of a seated-type electric scooter with a battery in thermal runaway, flash-over conditions were observed in as little as 30 seconds from the first appearance of smoke. Toxic gases like carbon monoxide reached life threatening concentrations in under one minute. [7]

Section 19 of HB 4007 sets requirements for the storage batteries used for e-bikes and powered micromobility applications. However, to mitigate the fire hazard, we strongly

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[2] *See e.g.,* UL Solutions. Safety of Self-Balancing Scooters and UL 2272. 2016. https://code-authorities.ul.com/wp-content/uploads/sites/40/2016/09/10256-Hoverboard-WhitePaper-FINAL.pdf.

[3] *See e.g.*, Deml, Jenna, and Anthony Kustura. "PHOTOS: 11 Displaced After Lithium Batteries Cause Two Separate Fires in Portland." *KOIN 6 News*. Published September 13, 2024. https://www.koin.com/news/portland/photos-lithium-battery-fires-09122024/; KTVZ News Partners. "Officials Offer More Details on NW Bend Garage Fire Apparently Sparked by Older E-Bike's Failed Lithium Battery." *KTVZ*, October 4, 2022. https://ktvz.com/news/fire/2022/10/04/nw-bend-garage-fire-apparently-sparked-by-older-e-bikes-failed-lithium-battery/ ; PF&R Responds to Lithium-Ion Battery-Powered Scooter Fire in Apartment Building This Morning (Photo).

[4] New York City Fire Department. *Notice of Public Hearing and Opportunity to Comment on Proposed Rule: Rules Relating to Uncertified Storage Batteries for Powered Mobility Devices*. Proposed rule published August 15, 2025. Table 1, "Lithium-Ion Battery Fire Investigations, Injuries and Deaths (as of July 14, 2025)." Accessed October 13, 2025. https://rules.cityofnewyork.us.

[5] Ethan Lang, "Toronto Fire Chief Calls E-Bike Batteries 'Largest Growing Fire Safety Risk in the City,'" *CBC News*, September 24, 2025, https://www.cbc.ca/news/canada/toronto/toronto-fire-ebike-battery-risk-1.6987654.

[6] UL Solutions, *Lithium-Ion Battery Incident Reporting*, accessed October 13, 2025, Lithium-ion Battery Incident Reporting | UL Solutions. The database reports that micromobility devices (defined as those traveling under 20 MPH) were involved in 1,982 injuries and 340 fatalities due to lithium-ion battery incidents.

[7] Fleischmann, Charles, Craig Weinschenk, Daniel Madrzykowski, Alexandra Schraiber, and Benjamin Gaudet. "Quantifying the Fire Hazard from Li-Ion Battery Fires Caused by Thermal Runaway in E-Scooters." *Fire Technology 61 (2025): 2865–2887*. *https://doi.org/10.1007/s10694-025-01707-z*.

recommend that lithium-ion batteries, and the products they power, be certified by an independent third-party to the applicable safety standards. From manufacturing defects to electrical, mechanical, and environmental abuse, there are a number of factors that can increase the risk of thermal runaway in a lithium-ion battery. It is important to address these factors not only in the battery pack, but also the electrical system the battery pack powers. The electrical system is comprised of the battery (lithium-ion cells integrated into a pack), battery management system (BMS), electric motor, motor controller, wiring and circuitry, and charger. The figure below breaks down this electrical system, identifying the purpose of each standard.

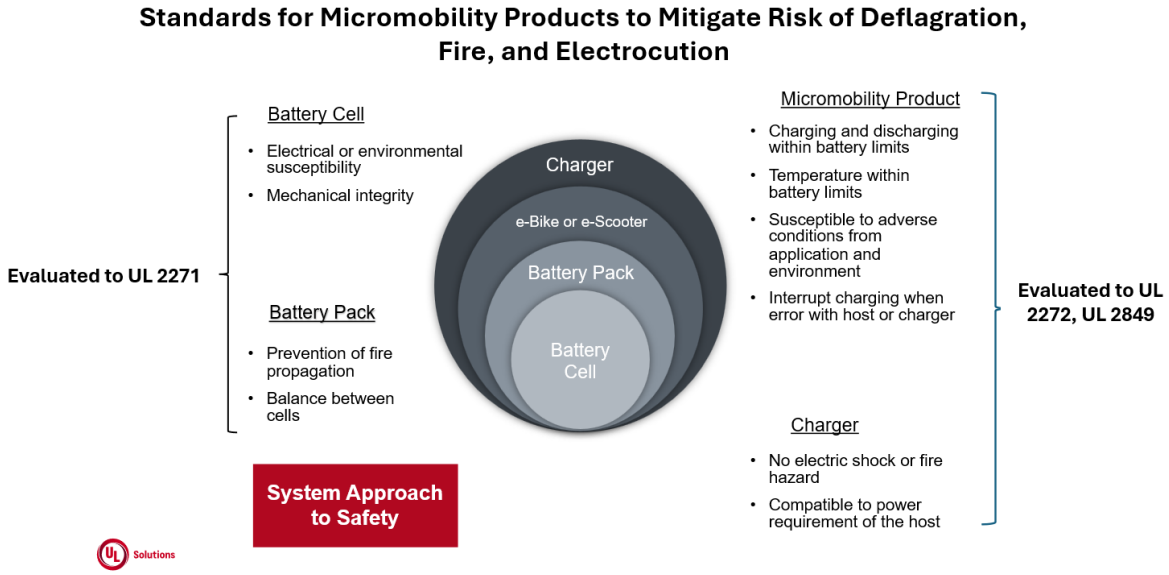

Figure 1. The electrical system of an e-bike or other powered micromobility product and the standards that apply to each part of the system.

Because these parts work together, even a properly designed battery can suffer damage, increasing the risk of thermal runaway, if the electrical system causes it to operate outside of its safe operating parameters, such as limits on temperature, voltage, and current. Evaluating and testing the battery and the full electrical system together, as required by UL 2849 (for e-bikes) and UL 2272 (for e-scooters and other powered micromobility devices) helps ensure they are compatible and mitigates factors that could cause the battery to operate outside of its safe operating parameters during normal use or through foreseeable misuse. Therefore, we recommend that HB 4007 include requirements for the end product (i.e., e-bikes and powered micromobility products) as well as those products' batteries.

As required by Section 19, certification is the appropriate risk-based conformity assessment path for these products. Thermal runaway is a severe hazard. Compliance to safety standards to mitigate the hazard cannot be ascertained via external inspection of the product; plus, the competencies to meet the requirements of the standards may vary across global supply chains. Requiring certification, with "clear, legible indicia"[8] enables enforcement authorities and consumers alike to distinguish between compliant and noncompliant products by simply looking for known certification marks. Most importantly, market studies have found notably higher rates of nonconformance with safety standards for products sold under a supplier's declaration of conformity (SDoC) compliance model.[9]

While HB 4007 correctly requires certification, we recommend modifying the language to clarify the type of organization qualified to conduct the certification. The language of Section 19 allows certification by organizations "recognized by the United States Occupational Safety and Health Administration (OSHA), the United States Consumer Product Safety Commission (CPSC) or an independent laboratory that has been certified by an accrediting body for compliance with nationally recognized battery standards . . ." Of these designations, OSHA, through the Nationally Recognized Testing Laboratory (NRTL) program, is the best designation for competent and ongoing conformity assessment for e-bikes, powered micromobility devices, and their lithium-ion batteries.

Under the NRTL program, OSHA recognizes private sector organizations to conduct testing and certification to approved standards, including UL 2271, UL 2272, and UL 2849.[10] OSHA also requires ongoing factory surveillance, with two to four factory visits per year, during which the certifier inspects the products under production to verify changes have not been made that affect the certification. While the CPSC recognizes test labs, that testing is to very different standards.[11] Moreover, the organizations recognized by the CPSC do not perform the same market surveillance duties under the program. Finally, we would not

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[8] HB4007 § 19(2)(b)

[9] *See e.g.*, TIC Council, Market Study Executive Summary: Consumer Goods in the EU—Persisting Safety Issues (2023), https://www.ticcouncil.org/application/files/6716/7837/4198/Market_Study_Executive_Summary.pdf (study conducted in 2022, finding that out of 120 consumer products tested (ranging from small appliances to lighting and battery chargers), 85 did not fully comply with required safety standards, with 28 having serious non-conformities (i.e., capable of leading to severe injury or property loss). Study was performed on non-third-party certified goods sold in the EU; International Federation of Inspection Agencies (IFIA) and CEOC International, TIC Federations Consumer Product Market Survey: 2014–2016, http://www.ifia-federation.org/content/wp-content/uploads/IFIA_CIPC_239_2014-2016_Market_survey_report.pdf.) (study conducted in 2019 of products sold in the EU and North America, finding serious non-conformities in 17% of the tested EU samples (non-third-party certified), but less than 1% of samples with non-compliance issues for third-party certified samples sold in North America).

[10] U.S. Department of Labor. *OSHA Nationally Recognized Testing Laboratory (NRTL) Program – Appropriate Test Standards*. Occupational Safety and Health Administration. Approved standards include UL 2849, UL 2272, and UL 2271. Accessed October 27, 2025. https://www.osha.gov/nrtl/appropriate-test-standards; See individual NRTLs for their scopes of recognition (OSHA's Nationally Recognized Testing Laboratory (NRTL) Program - Current List of NRTLs | Occupational Safety and Health Administration).

[11] *See e.g.*, Consumer Product Safety Commission. "Rules Requiring Third-Party Testing and a Children's Product Certificate." *U.S. Consumer Product Safety Commission*. https://www.cpsc.gov/Business--Manufacturing/Testing-Certification/Lab-Accreditation/Rules-Requiring-Third-Party-Testing.

recommend allowing certification by an "independent laboratory" as the current language does not provide guardrails to ensure the certification process is competent, impartial, and ongoing.

We support HB 4007's reference to "nationally recognized standards." UL 2271 is the nationally recognized standard for rechargeable lithium-ion battery packs used in e-bikes and powered micromobility applications. And UL 2849 and UL 2272 are the nationally recognized standards for e-bikes and powered micromobility devices, respectively.[12] These are the standards the US Consumer Product Safety Commission has advised manufacturers to meet for e-bikes and other powered micromobility products sold in the U.S.[13]; other standards in use in other countries are not equivalent in scope and requirements.[14] To avoid confusion, we recommend identifying UL 2271, as well as UL 2272 and UL 2849 in the language of the bill.

E-bikes and powered micromobility device fires have taken lives, caused injuries, and damaged property. We appreciate the action you are taking to reduce this risk and urge you to consider the recommendations made here to better mitigate the hazard and provide a more rigorous and robust level of assurance that the lithium-ion battery powered products sold in Oregon are safer for citizens and first responders.

If you have questions, please do not hesitate to contact Meghan Housewright, Government Affairs Lead for Safety and Security at UL Solutions (meghan.housewright@ul.com; 202-530-6176).

Sincerely,

/s

Derek Greenauer
Director Public Affairs, Americas Region
UL Solutions

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[12] ANSI/CAN/UL 2271, ANSI/CAN/UL 2272, ANSI/CAN/UL 2849 are the American National Standards for these products. They were developed in a consensus-based, stakeholder led process accredited by the American National Standards Institute (ANSI).
[13] Robert S. Kaye, *Letter to Manufacturers, Importers, Distributors, and Retailers of Micromobility Devices for Consumer Use*, U.S. Consumer Product Safety Commission, December 19, 2022, Important Safety Information Concerning Micromobility Devices.pdf.
[14] *E.g.,* EN 15194, a European e-bike standard, has a different product scope (pedal-assist e-bikes with a top speed of 15.5 mph and a continuous rated motor power of 250 watts or less) and different requirements (broad product safety requirements including mechanical safety, with less extensive requirements for electrical safety); UL 2849 points to the jurisdiction of sale for speed and power and covers non-pedal assist e-bikes as well. It also was developed to address the e-bike electrical system and contains more extensive design, construction, and testing requirements for fire and electrical safety.