

REGULATIONS OF E-BIKES IN THE UNITED STATES

A POLICY REVIEW (15-4235) John MacArthur¹ & Nicholas Kobel¹

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OBJECTIVES

- 1 Delineate the types of e-bikes currently on the market.
- 2 Offer an overview of e-bike regulations in the U.S. at federal and state levels.
- 3 Consider the implications that the current legal status of e-bikes creates.

METHODOLOGY

Through reviewing the **literature and online resources**, we revealed how people use the term *e-bike* to help develop a normative framework for addressing standardization. For legislation, we researched **federal, state, and municipal codes** by querying legal databases and contacting **state DOTs, DMVs, and state police**. We also contacted several **federal agencies** to ensure accurate interpretation.

FEDERAL REGULATIONS

Applies to **manufacture and first sale** of e-bikes

The Consumer Product and Safety Administration (CPSC) and the National Highway Traffic Safety Administration (NHTSA) regulate the **manufacture and first sale** of e-bikes. NHTSA cedes to CPSC's definition of *low-speed electric bicycle* and considers vehicles meeting the standard **not to be motor vehicles**. The standards for *low-speed electric bicycles* are below:

- Max speed of 20 mph
- Max 750 W output
- Fully operable pedals

STATE & LOCAL REGULATIONS

States free to govern **use and licensing** of e-bikes

States regulate the use and licensing of e-bikes. This includes **where** they can be ridden, **how powerful and fast** they can go, and any other requirement the states enact. When states do not have definitions that recognize e-bikes as a unique vehicle, the existing definitions of similar vehicles are used, such as *motorized bicycle* or *motor-driven cycle*. In **24 states**, e-bikes are essentially **regulated as a bicycle**.

Some municipalities have enacted further regulations on e-bikes, sometimes restricting use on certain paths.

OREGON

- 20 mph maximum speed
- Functional pedals required
- Max output of 1000 watts

In Oregon, *electric assisted bicycles* are regulated similar to a standard bicycle. Exceptions are that the operator must be **16 years of age**, and they are not permitted on **sidewalks**. The City of Eugene banned the use of e-bikes on off-street bicycle and pedestrian paths for 9 years; the City recently repealed the decision.

MICHIGAN

- No definition (it's a *moped*)
- License, registration required
- Must outfit with turn signals

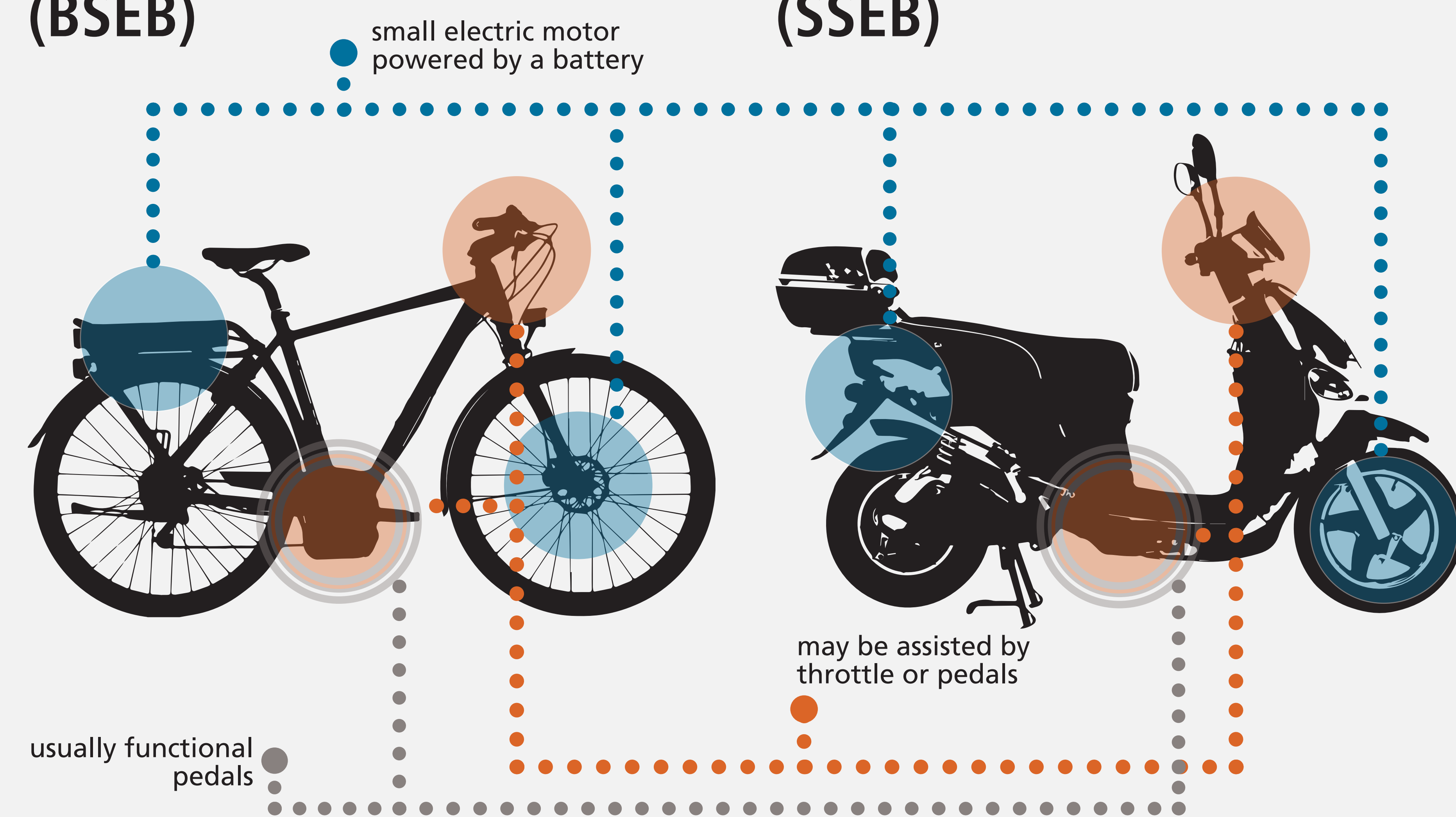
There is no definition for e-bikes in Michigan, and they are considered **mopeds**. It creates confusion because *mopeds* specify a **piston displacement of <100 CCs**, and e-bikes do not have an internal combustion engine. A driver's license, vehicle registration, turn signals, brake light, headlamp, and a horn are all required.

What's an e-bike?

Electric bicycles (e-bikes) are similar in geometry to human-powered bicycles but have a small electric motor that provides pedal assistance. They allow riders to accelerate, climb hills, and overcome wind resistance more easily than standard bicycles. There are two main categories.

Bicycle-style electric bike (BSEB)

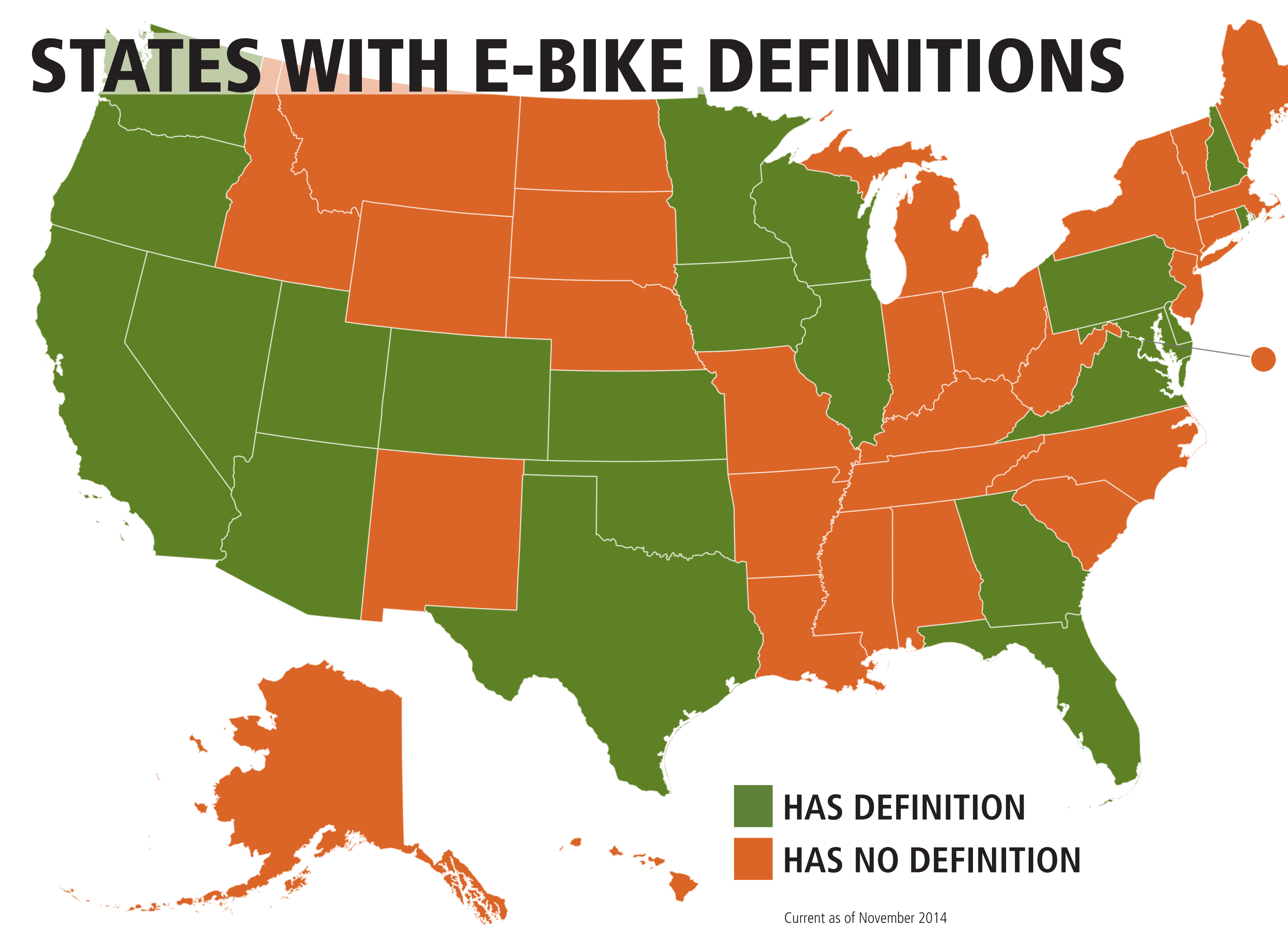
Scooter-style electric bike (SSEB)



Bicycle-style electric bikes (BSEB) can reach 20 miles per hour when propelled solely by the motor and have a motor of 750 W or less. These bikes have pedals that are meant to propel the bike with or without the help of the motor, which is engaged either automatically (torque or cadence sensor) or with the use of a throttle. BSEBs are distinguished by their ability to be considered bicycles.

The term *e-bike* has also been applied to electric scooters, mopeds, and motorcycles. These are called scooter-style electric bikes (SSEB). The distinction between BSEB and SSEB is of growing importance because as more people begin using e-bikes, policy makers will have to make decisions on regulations that may not serve the overall needs of the public.

STATES WITH E-BIKE DEFINITIONS



Less than half of all states (22) recognize e-bikes as a unique transportation device under vehicle code. In other states, e-bikes often fall under the definition of **motorized bicycle** and may require a driver's license. 27 states require

an operator's license to ride an e-bike, and 13 require registration. Some states, such as Alabama and Connecticut, require additional endorsements to operate e-bikes; in Alaska, riders must obtain a **motorcycle-class license**.

DISCUSSION & NEXT STEPS

Confusion at federal level

Terms and clauses used by CPSC and NHTSA for the regulation of e-bikes have led people to believe the federal law "supercedes" state laws. This is true only for **manufacture and first sale**, but **not for use**. This also creates gaps when consumers use **conversion kits** or when a manufacturer claims their product is not primarily for use on public thoroughfares.

A new class of vehicles, regulated similar to bicycles

E-bikes are not quite bicycles, but they are certainly not mopeds. The wide variety of e-bikes presents the need for a framework for classification. The Bicycle Product Suppliers Association released a draft classification for e-bikes that considers how the bike is built, use requirements, and where use of e-bikes should be permitted. Class 2 e-bikes would differ from Class 1 in that they are throttle-assisted and would not be permitted on trails. Neither Class 1 nor

Confusion at state level

When states fail to define e-bikes, riders are left with little guidance on how to use their bike legally and often times face **restrictions and requirements that are irrelevant**. Even with definitions, the laws are unclear. If a bicycle is a vehicle "propelled by human power," then it is also unclear whether the word "solely" must be prepended to distinguish e-bikes from bicycles.

Class 2 would require a license or registration, and the maximum speed is set at 20 mph. Class 3 e-bikes, sometimes called *speed pedelecs*, would have more stringent requirements. There is still some uncertainty about some parameters, such as weight, size, shape, and helmets. Lastly, policy makers must determine whether the motor can add any incremental assistance when the operator reaches the maximum speed.

| | Class 1 | Class 2 | Class 3 |
|-----------------------------|--------------|-----------------|--------------|
| Motor engagement | Pedal-assist | Throttle-assist | Pedal-assist |
| Motor size | 750 W | 750 W | 750 W |
| Top speed with motor | 20 mph | 20 mph | 28 mph |
| Weight, size, shape, wheels | ? | ? | ? |
| Functional pedals | ✓ | ✓ | ✓ |
| Age | 16 | 16 | 16 |
| License | × | × | ? |
| Registration | × | × | ? |
| Helmet | ? | ? | ✓ |
| Bike lanes | ✓ | ✓ | ✓ |
| Shared use paths | ✓ | ✓ | ? |
| Sidewalks | × | × | × |
| Trails | ✓ | × | × |



INTERACTIVE MAP OF E-BIKE LAWS ON HOMEPAGE



FOR A COPY OF THE FULL REPORT, VISIT [HTTP://EBIKE.RESEARCH.PDX.EDU](http://ebike.research.pdx.edu)



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