

E-assist pedal cycles

Safe, accessible and inclusive mobility



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Wheels for Wellbeing (WfW)

- **DPO:** est. 2007
- **Access to cycling:** inclusive cycling sessions; led rides; hire scheme.
- **Campaigns & Policy:** training & consultancy, publications; campaigns.
- **Mobility Justice:** targeting resources towards those who have least access to transport and mobility rather than those with the most mobility privilege.

Disability & Cycling

Report of 2021 National Survey Results



4th Edition / 2020

A Guide to Inclusive Cycling



Wheels for Wellbeing



E-assist pedal cycles: Safe, accessible and inclusive mobility

- **Safe** – for Disabled people and others walking/wheeling & cycling, in public and in private spaces – including when stored and during charging.
- **Accessible** – Disabled people are able to obtain, store and use e-cycles of types which work for us, facilitating Disabled people’s mobility.

“Parties shall take effective measures to ensure personal mobility with the greatest possible independence for persons with disabilities, including by **facilitating the personal mobility** of persons with disabilities **in the manner and at the time of their choice**, and at **affordable cost.**” - *United Nations Convention on the Rights of Persons with Disabilities article 20(a)*

E-assist pedal cycle features under consultation

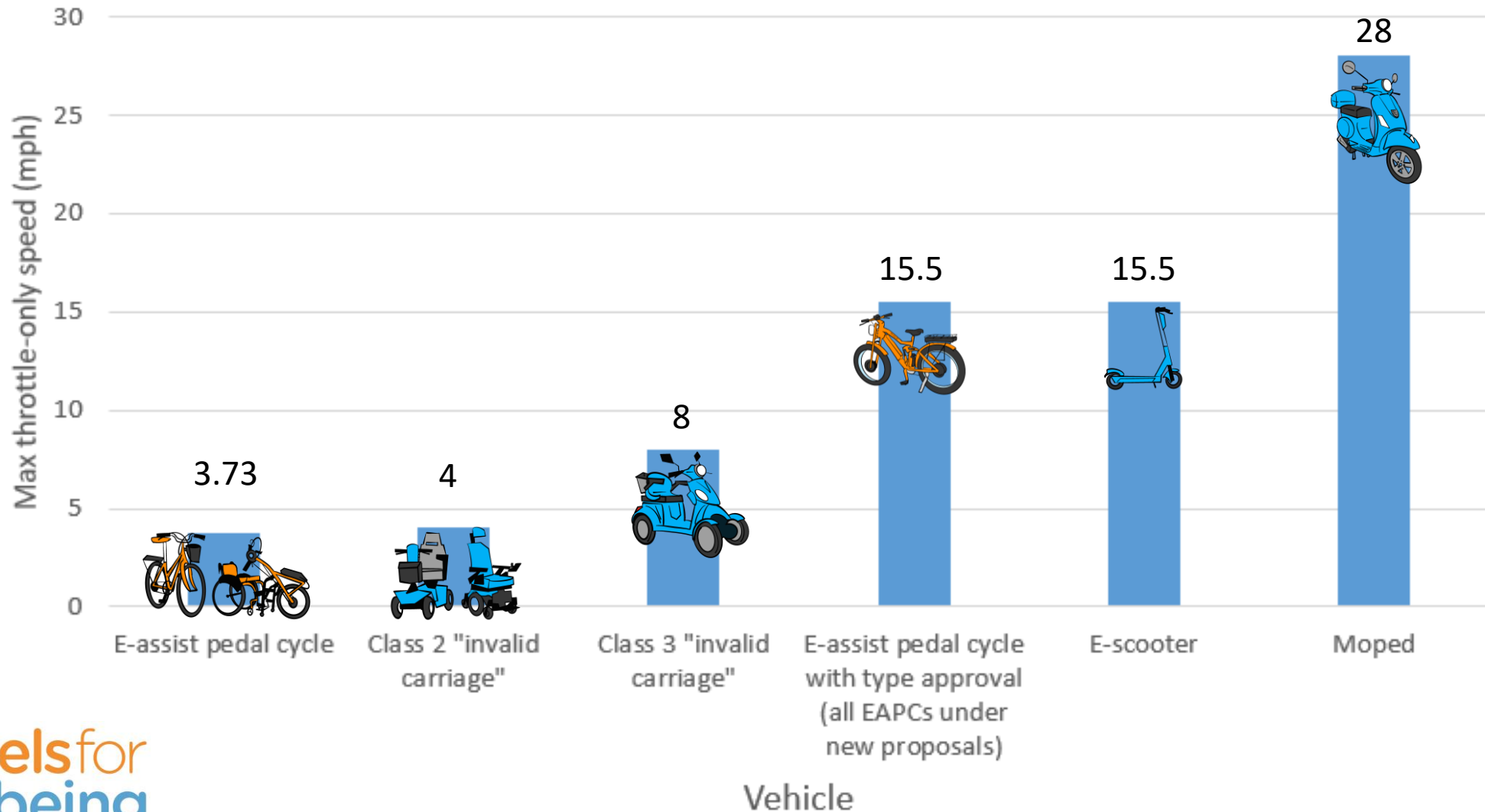
- **Throttles** – Proposal to increase permitted throttle speed for e-assist pedal cycles (EAPCs) from 3.73mph (6kph) to 15.5mph without type or individual approval.
- **Motor power** – Proposal to increase permitted continuous motor power from 250W to 500W.

- **Disabled people make time-sensitive journeys for employment, education, healthcare, in caring roles, for errands and for leisure.**
- **Compared to non-Disabled people, Disabled people are more likely to live in poverty, less likely to have access to a private vehicle and less likely to be able to use public transport.**

Throttles

- EAPCs must have working pedals that can move the cycle forwards.
- Sensors near to the pedals normally control the motor on an EAPC.
- Throttles are switches which control a motor. They can operate alongside sensor control or without motor sensors.
- Presently, EAPCs may have throttles control up to 3.73mph, or 15.5mph with type or individual approval.
- The proposals would permit all EAPCs to have throttle control to 15.5mph

Current max throttle speed for EAPCs and similar devices



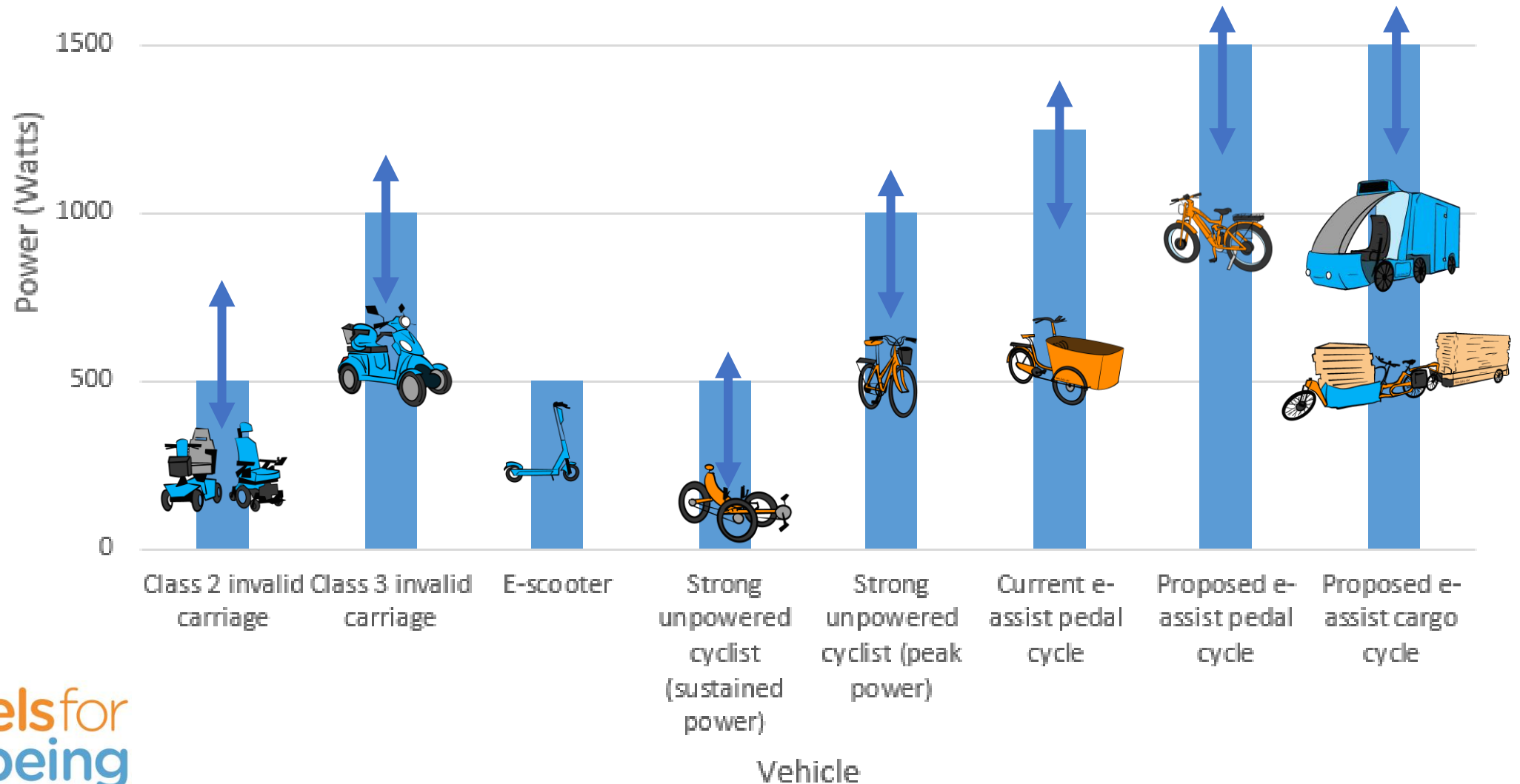
Throttle maximum speed - we call for:

- **Clarity in guidance** that 3.73mph/6kph throttles are already legally permitted on all EAPCs.
- **Research and consultation** into permitting higher speed throttles:
 - **Potential to improve Disabled people's mobility** via higher-speed throttle-only cycle option above the guidance minimum design (balance) speed of 7mph/12kph.
 - **Consider maximum throttle speeds from 8mph to 12mph/20kph** (current class 3 “invalid carriage” top speed to current e-scooter top speed in Germany, Italy, Denmark, Norway etc).
 - **Potential to align EAPC, “invalid carriage” and micro-mobility speed limits.**

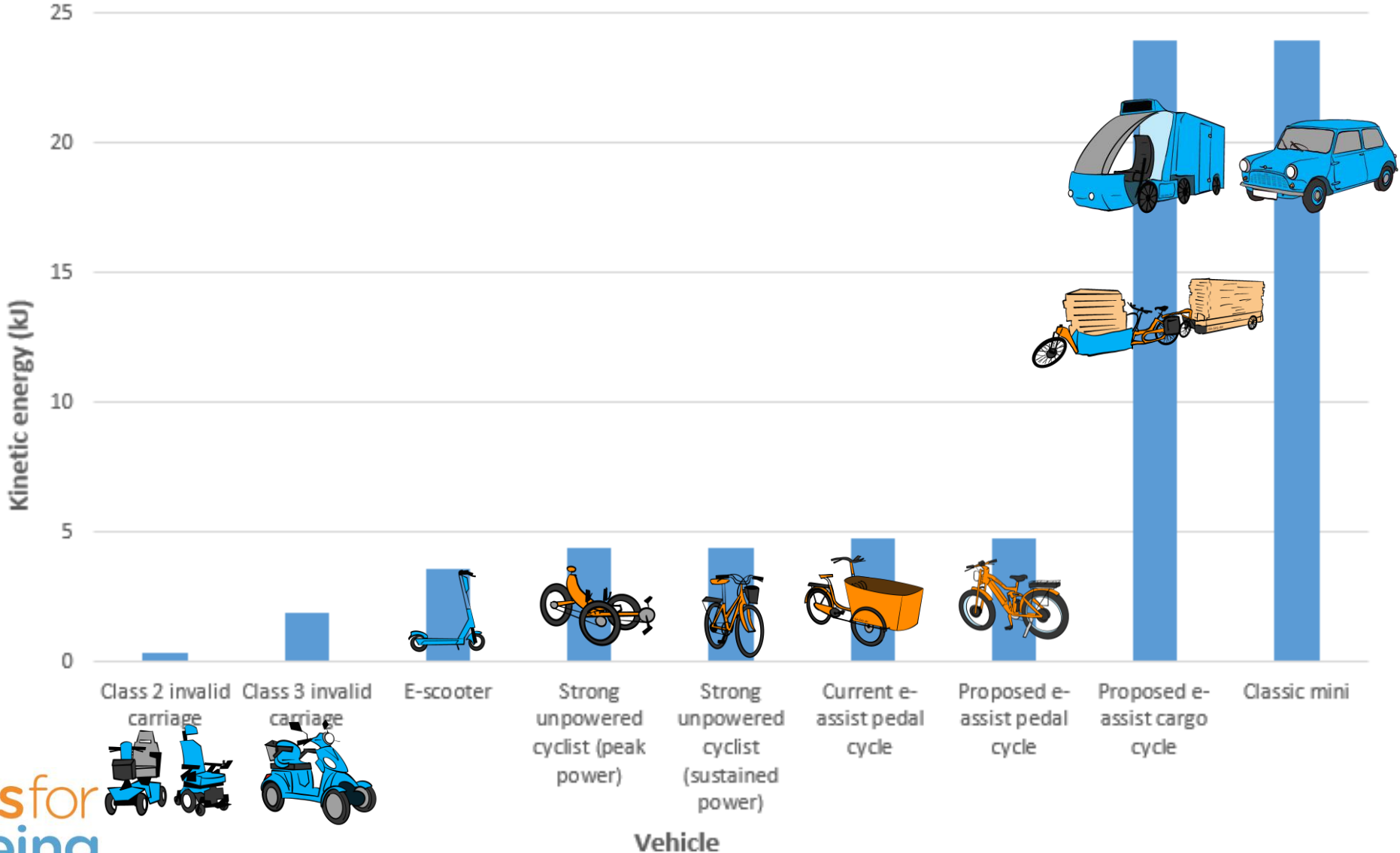
Motors

- Motors on EAPCs provide power to help propel the cycle.
- EAPCs provide motor power when a rider is pedalling.
- A throttle allows an EAPC motor to run without the rider pedalling.
- The present maximum continuous power of an EAPC motor is 250W, with a cut-out speed of 15.5mph

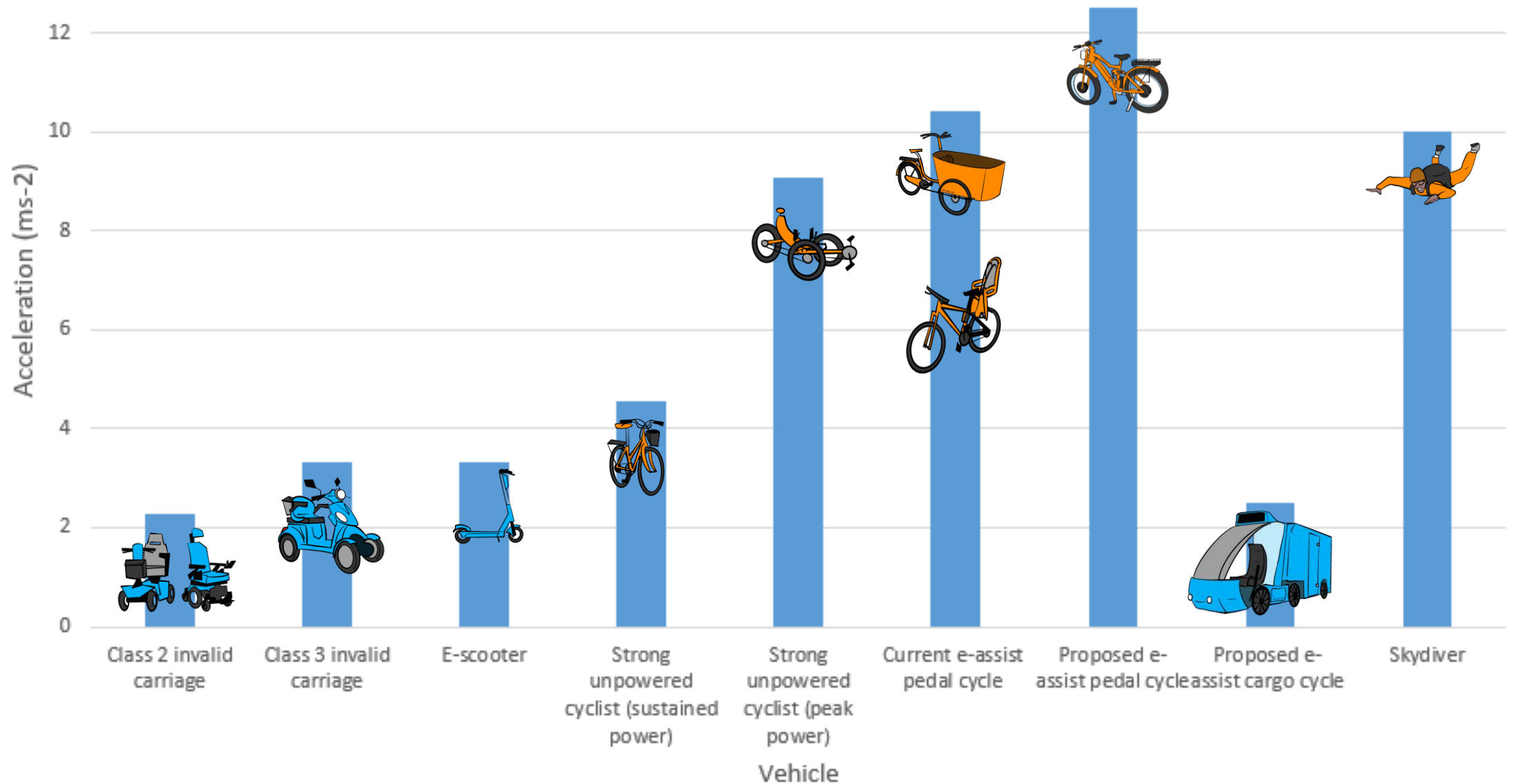
Estimated peak power for e-assist cycles and similar devices



Kinetic energy of e-assist cycles and similar devices



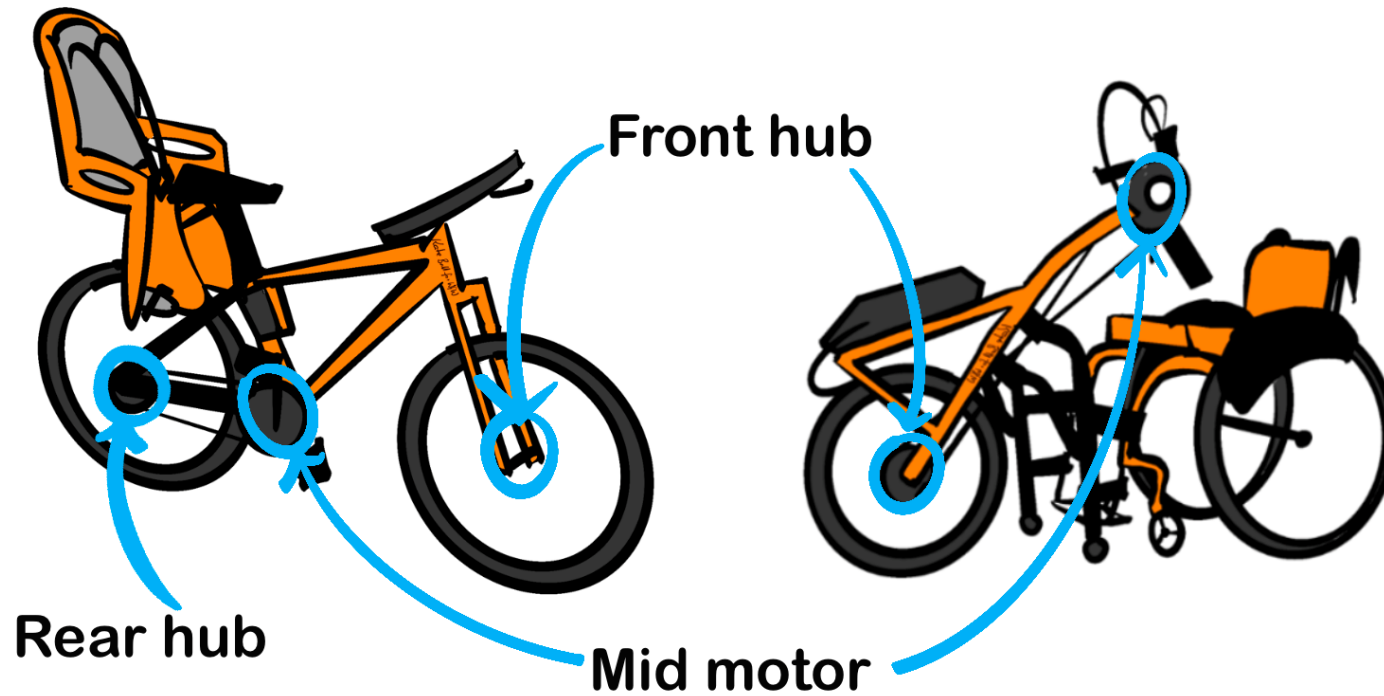
Potential peak acceleration of e-cycles and similar devices



EAPC motor maximum continuous rated power

Motor effectiveness is significantly affected by: **Location of motor:**

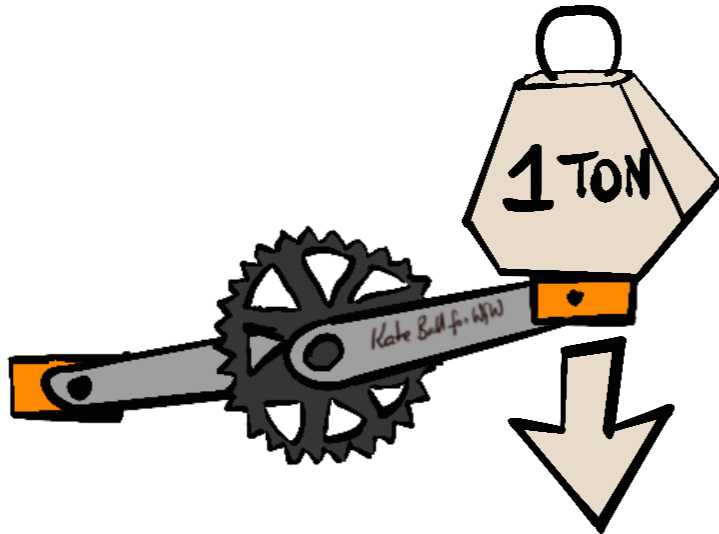
Common e-cycle motor positions



EAPC motor maximum continuous rated power

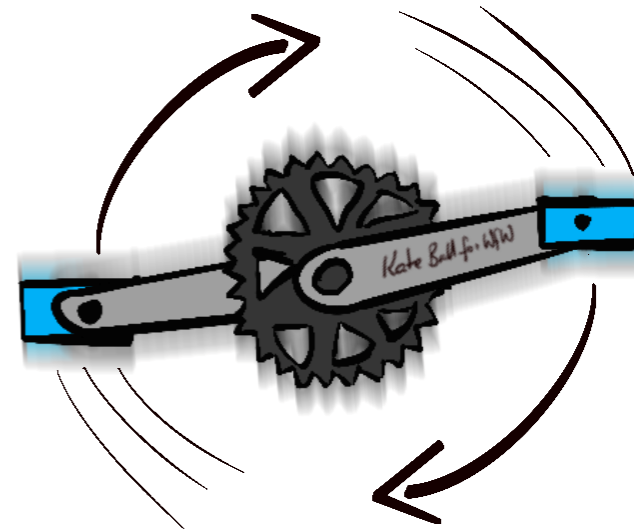
- 250W motor effectiveness is significantly affected by: **Sensor type (and throttles):**

Torque sensor:



Power when you push
on the pedals

Cadence sensor:



Power when your
pedals move

Motor power and safety

- **Safety considerations - general:**

- Heavier / very high-acceleration vehicles should not mix with pedestrians and cyclists.
- Heavier vehicles need different specifications from lightweight cycles, and need regular safety checks – especially of brakes.

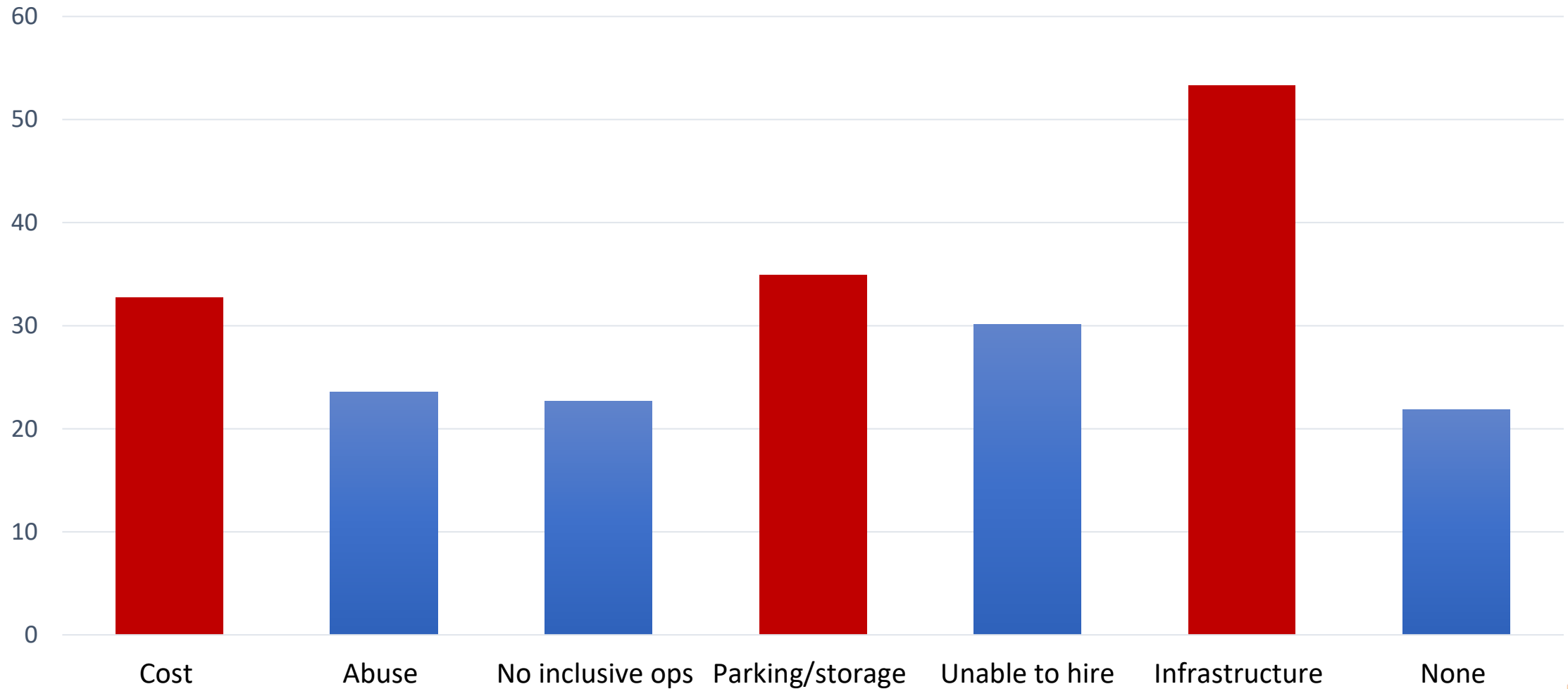
- **Safety considerations – commercial delivery cycles:**

- Delivery sector regulation needed to make companies responsible for the safety and legality of their riders' cycles and cycling to reduce illegal e-motorcycle prevalence and pressure on delivery cyclists to ride dangerously.
- National guidance / standards for safe loading, rider sight lines, maintenance and use of cargo cycles are needed.

To improve Disabled people's mobility – we call for:

- E-assist pedal cycle motor power to remain at 250W by default;
- Specific limited exemptions for higher motor power (potentially >500W):
 - **Where needed by Disabled people:**
 - Handcycles – power input by the cyclist will always be low;
 - Heavy cycles used by Disabled people, e.g. wheelchair transporter cycles
 - AND**
 - **Where safety of others will not be compromised.**
 - Consider reducing maximum e-assist speed for heavier cycle types

Disabled people's barriers to cycling



Measures to increase cycling & e-cycling accessibility

1. **Recognition of cycles as mobility aids** – including the right for Disabled people to use cycles at walking speed in pedestrian spaces;
2. **Continuous, safe, accessible routes** – to at least LTN 1/20 standards;
3. **Sufficient safe, accessible and secure cycle parking and storage** – at homes and destinations;
4. **Funding for e-cycles** for Disabled people.
5. **Accessible multi-modal journeys** – enabling Disabled people to take our cycles and larger mobility scooters on buses, trams, trains and coaches;

In conclusion:

1. The key barriers to Disabled people's cycling will not be addressed by increasing maximum EAPC motor size and throttle speeds.
2. These proposals carry high risk of causing overall harm to Disabled people's mobility.
3. We would welcome research into measures to improve access to cycling for Disabled people without increasing risk to others walking/wheeling & cycling.
4. Development of a new motorcycle category could facilitate use of higher power and heavier e-cycles on carriageways only, with safety regulations & licencing of use.
5. We would welcome national guidance on safe use of cargo cycles including loading, rider sight lines and brake function.
6. Making delivery companies responsible for the safety and legality of their riders' cycles and cycling could reduce risk, improve public opinion and increase business viability for cycle delivery firms.