Unregulated and Unsafe: The Threat of Illegal E-Bikes

How fake e-bikes pose a safety risk and undermine the UK's active travel efforts

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"It is the failure to tackle a growing minority of unsafe and illegal practices that is now putting the whole sector at risk"

Foreword from our Chair

Electric bikes (e-bikes) have the power to reshape how we move, opening up cycling to more people, reducing reliance on cars, and helping our towns and cities become cleaner, healthier and more connected. Unfortunately, as this report shows, that potential is now under threat.

Over recent months, we've seen mounting concern about e-bike safety, from a sharp rise in battery fires to increasing numbers of illegally modified bikes on our roads. Behind these headlines is a deeper problem: a lack of oversight, accountability, and protection for some of the most vulnerable people using these vehicles - gig economy workers trying to make a living under intense pressure.

This inquiry set out to understand what's really going on. We heard from fire services attending dangerous blazes, police officers frustrated by unclear powers, unions representing gig economy riders, and industry bodies committed to responsible manufacturing. What emerged was a regulatory system failing to keep pace; with technology, with work, and with the needs of people trying to get by.

The APPGCW is proud to champion active travel in all its forms. But we must also be honest: when regulation lags, when bad faith actors profit from loopholes, and when vulnerable workers are left without support or safety, the consequences are real and undermine active travel as a whole.

This report makes clear that the vast majority of e-bike users and businesses are doing the right thing. It is the failure to tackle a growing minority of unsafe and illegal practices that is now putting the whole sector at risk. Bans on legal e-bikes, rising public concern, and reputational damage to a critical mode of transport must be addressed with urgency and clarity.

We are calling for stronger product regulation, fairer working conditions, better enforcement, and support for those on the front lines; whether they are riders, firefighters, retailers or regulators. The solutions are within reach, but they require urgent and coordinated action across Government, industry and platforms alike.

My thanks go to all who contributed to this inquiry. I hope this report provides a constructive foundation for reform, one that ensures e-bikes remain a safe, trusted and central part of the UK's transport future.

Executive Summary

This inquiry by the All-Party Parliamentary Group for Cycling and Walking (APPGCW) reveals that serious and growing safety issues are undermining this potential, particularly in the context of the gig economy and unregulated online marketplaces.

The report finds that the majority of serious safety incidents, particularly battery fires, are linked not to legal e-bikes, but to poor-quality, often illegal products. These include throttle-controlled motorbikes sold as "e-bikes" online, and high-powered conversion kits that allow ordinary bicycles to be modified in ways that breach legal limits for speed and power. These kits are often assembled from incompatible parts and paired with uncertified batteries and chargers, creating a significant fire risk both on the road and in residential buildings. Evidence from fire services confirms that callouts to battery fires are rising sharply, with some resulting in serious injuries or fatalities. This is not a general issue with e-bikes, but a specific and growing problem linked to substandard products entering the UK through online marketplaces.

A major driver of this trend is the growing use of such products by gig economy delivery riders. Under pressure to make fast deliveries and earn a living on piece-rate pay structures, many riders turn to illegal or unsafe vehicles that can travel faster than a legal e-bike but are far cheaper than road-legal mopeds or electric vehicles. Delivery platforms do not currently take responsibility for the vehicles used by riders, and most offer little or no guidance on purchasing, maintenance, or safety standards. This has created a loophole where low-paid riders are left to make high-stakes decisions without support, often exposing themselves and the public to serious risk.

Enforcement agencies, including police and trading standards, face difficulty tackling the problem, in part because the legal and regulatory framework is outdated or unclear. While the sale of these products is often legal, their use on public roads is not. Yet there are limited tools available to remove them from circulation, and insufficient resources to respond at the pace the issue demands. Similarly, the lack of formal standards for e-bike conversion kits and the absence of a clear kitemarking or certification system for e-bike safety creates confusion among consumers, insurers, transport operators and regulators.

The inquiry also heard that these issues are having wider unintended consequences. For example, bans on non-folding e-bikes on parts of the public transport network, brought in as a fire safety measure, affect all users, including those with legal, certified equipment. This disproportionately impacts disabled cyclists who rely on e-cycles for mobility. The reputational damage to the cycling sector is also substantial, with legitimate retailers and manufacturers seeing growing hesitancy among customers and partners.

This report presents a clear case for action. While the benefits of e-bikes remain considerable, they can only be realised if the UK addresses the growing shadow market of unsafe products, and ensures that all riders, particularly those working in the gig economy, are protected, trained and equipped to travel safely.

It is not too late to act. Our recommendations provide implementable guidance to the Government and stakeholders to get on top of the problem and continue to benefit positively from more active travel.

Recommendations

- **Withdraw Unsafe E-Bike Items From Sale Immediately**

  We call on online retailers to immediately withdraw from sale all e-bike conversion kits, batteries, and chargers that lack appropriate product certification or exceed power or speed limits defined within EAPC (Electrically assisted pedal cycles) guidelines. These items are fuelling fire risks and undermining public safety. Following this voluntary action, use the Product Regulation and Metrology Bill to impose binding duties on online marketplaces: they must verify sellers, ensure product safety, and immediately remove dangerous listings. Marketplaces should be held fully liable for the sale of unsafe or non-compliant e-bike products.

- **Fix The Gig Economy Loopholes**

  Tackle gig economy exploitation and eliminate the legal grey area of 'substiution' that allows platforms to avoid responsibility. Reintroduce 'worker' status for gig economy riders, based on the EU Platform Work Directive or the UK's previously proposed Single Worker Status, to guarantee protections, including minimum wage and health and safety rights.

  Stop incentivising dangerous riding by mandating that delivery companies structure pay so that riders earn a living wage across full shifts, not just per delivery. Remove the need to take risks in order to make ends meet.

- **End the Road-Legal Loophole**

  Close the dangerous gap that allows illegal vehicles to be sold under the guise of off-road use. Require a demonstrable legal use case for high-powered e-bikes and electric motorbikes. Fast-track legislation to legalise and regulate safe, certified e-scooters.

- **Lift E-Bike Bans Through Safety Certification**

  Create a clear route to lifting bans on e-bikes in buildings and on public transport by introducing a government-backed kitemark scheme, developed with the cycling industry, to identify safe, legal and fire-tested e-bikes. In addition, fast-track the new standard (PAS 7250) to address battery and conversion kit safety.

- **Give Police Clear Powers to Act**

  Equip police with specific powers to seize unsafe or illegal e-bikes, separate from existing powers under section 165a of the Road Traffic Act, to enable faster, clearer enforcement. Improve Police data collection around journey purpose in collision database, STATS19, including work trips; mileage, industry and mode of travel, and distinguish between e-bike vs pedal cycle, and between compliant and 'fake' e-bikes. Enhance resourcing to remove dangerous e-bikes from streets and sellers with additional resourcing for the DVSA market surveillance unit team, and for Trading Standards, to crack down on irresponsible sellers and importers.

- **Enforce Compliance from Delivery Platforms**

  Require delivery companies to run real-time compliance checks using GPS or accelerometer data and to implement robust verification systems - such as timestamped, geotagged bike photos - before and during shifts.

- **Fund a National Scrappage Scheme**

  Launch an e-bike scrappage or swap scheme to get dangerous bikes and batteries off the streets. The cost must be covered by the delivery companies profiting from their use.

Introduction to this Report

Electric cycles, or "e-bikes" as they are often known, provide a fundamentally positive contribution to personal mobility and local cargo transport. By offering motor assistance while a rider pedals, they extend how often and far a person can cycle, as well as how much they can carry (including children, commercial goods and tools to supply services). Legal e-bikes have a battery-powered motor, restricted to prevent assistance above 15.5mph. The motor is activated when the rider pedals.

When legal and properly certified, e-bikes are a safe and efficient way to reduce congestion, cut emissions, and open up cycling to groups who might otherwise be excluded, including older and disabled riders. They also offer efficient means of moving goods and services, particularly in built-up areas. Active travel, which includes e-cycling, is crucial to UK decarbonisation goals by allowing businesses and even local authorities to move some operations to pedal-power.

However, alongside this potential, there has been a sharp rise in safety concerns, particularly relating to fires caused by uncertified or poorly modified e-bike products and dangerous riding practices associated with gig economy delivery work. These concerns are having a chilling effect on consumer confidence, insurance availability, and public infrastructure access, threatening to undermine the wider growth of cycling and active travel in the UK.

In response, the All-Party Parliamentary Group for Cycling and Walking (APPGCW) launched this inquiry to examine the causes and consequences of unsafe e-bike use, with a particular focus on illegal conversion kits, the role of online marketplaces, and the pressures faced by delivery riders operating in the gig economy.

The inquiry gathered both written and in-person evidence from a wide range of contributors, including:

- National regulators and fire services
- E-bike manufacturers, retailers and trade associations
- Disabled cycling advocates
- Local authorities, police forces and insurers
- Academic researchers and legal experts
- Trade unions and delivery riders themselves

"When legal and properly certified, e-bikes are a safe and efficient way to reduce congestion, cut emissions, and open up cycling to groups who might otherwise be excluded"

In total the inquiry received 60 written submissions and took in-person evidence from 13 of the key players, including those involved in the manufacture, sale, use and regulation of e-cycles. In addition desk-based research was used to understand the existing legislation, evidence, research and the scale of the problem. This report brings together the findings of that inquiry and research. It outlines the scale of the problem, the conditions enabling it, and the impacts on individuals, communities and the wider cycling ecosystem. Most importantly, it sets out practical recommendations to improve product safety, enforce legal standards, support responsible industry, and better protect both riders and the public.

The APPGCW is grateful to all those who gave their time and expertise to inform this work. Our aim is to support the Government in taking evidence-based action to ensure e-bikes remain a safe, accessible and integral part of the UK's active travel future.

Key Findings & Facts

If British brands and sellers were to tap into comparable levels of growth, a 2021 Department for Transport report suggests, by 2050 the electric vehicle sector, which includes e-bikes, could contribute at least an extra £1bn gross value added to the UK economy, supporting at least 40,000 jobs.[1]

According to the UK Energy Research Centre, "cycling is ten times more important than electric cars for reaching net-zero cities."[2]

The UK e-bike market grew almost fivefold in just five years to 2022, and is now worth more than £300m, with sales by volume tripling in that time.[3]

A UK government consultation on e-cycle legislation in 2025 found the public understands e-bikes' benefits, with 79.92% of respondents saying increasing their use would help cut congestion. Research from Transport for London found 17% of van trips in London could be replaced with cargo bike by 2030.4[4]

The European Cycle Federation has calculated, meanwhile, that a commuter who switches from car to cycle for an 8km commute would save 750kg of CO2 emissions annually. At present transport is the biggest single carbon emitter in the UK.[5]

The bicycle industry, including retailers, repairs and suppliers, is worth around £7.5bn a year to the UK economy, supporting 64,000 jobs, according to a 2023 report.

However, the UK lags behind Europe in the growth of e-bikes. UK e-bikes sales make up 9% of the domestic cycling market - significantly below Europe's average of 27%, or 57% in Austria. While in 2022, around 155,000 e-bikes were sold in the UK, in the same period in Germany more than two million were sold, and around 900,000 in the Netherlands.[6]

1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

2 https://ukerc.ac.uk/news/cycling-is-tentimes-more-important-than-electric-cars-forreaching-net-zero-cities/

3 https://www.mintel.com/press-centre/mintel-cost-of-living-puts-brakes-on-e-bike-growth-as-sales-slow-for-the-first-time-in-five-years/

4 https://content.tfl.gov.uk/cargo-bike-guidance-july-2024-acc.pdf

5 (Hopkinson L (2023), The UK cycle industry: current economic and employment benefits and its decarbonisation-driven growth potential, March 2023

6 (Cycling Electric, 'Key milestones of bike sales around the world', March 17, 2025.)

What is an e-bike?

E-cycles, which come in a wide range of shapes and sizes, can provide people from all walks of life, including disabled cyclists, with mobility options that enable them to exercise, prevent and manage health conditions and gain easier access to the outdoors - with all the physical, mental and economic benefits that entails. These come under the heading 'electrically assisted pedal cycles' or EAPCs.

Electric cycles sold legally in the UK undergo rigorous testing to ensure they are safe in use, storage and while charging, and UK-standard e-bike batteries, frames and motors are certified to CE and UKCA safety standards. Multiple failsafe mechanisms exist to prevent battery fires, making it extremely hard to induce 'thermal runaway' - the process of uncontrollable self-heating.

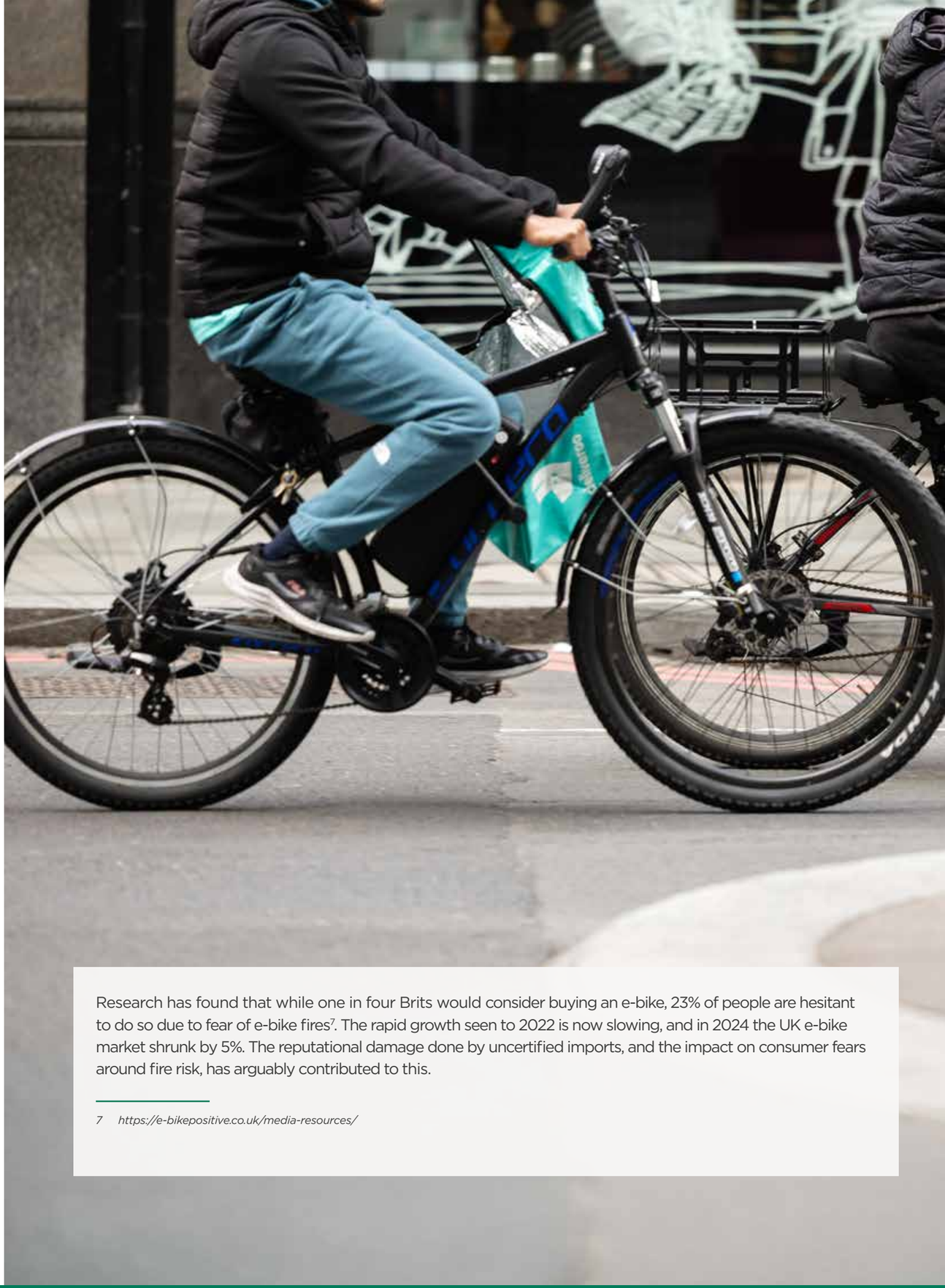
In recent years, however, the influx of illegal and uncertified products - fake e-bikes - to the market has led to a slew of devastating house fires, while dangerous behaviour by those riding illegally modified bicycles is raising road safety concerns. Modified fake e-bikes can achieve speeds far above the legal maximum - up to 70 mph - with overpowered motors and substandard batteries and chargers - that are not sufficiently safety tested and certified for UK use - increasingly being purchased and used in the UK. These are illegal motorbikes in all but name. When attached to regular cycles, substandard e-bike conversions, derestriction of speed limits and battery tampering can place undue strain on key parts, including the brakes, which are not intended for such use.

Although the concerns around untested dangerous products are well-founded, the fallout from those concerns threatens to engulf a regulated industry selling safe, certified products that have real benefits across society, including for the most vulnerable and transport-poor. The impact of these substandard fake e-bike products has been a shift in public perception towards 'electric bikes' as a whole.

In this report we refer to "fake e-bikes". Fake e-bikes are vehicles that resemble legal electrically assisted pedal cycles (EAPCs) but do not comply with UK laws on power, speed, or control mechanisms. Unlike legal e-bikes, which must have a motor limited to 250W and cut out assistance above 15.5mph, these bikes often feature throttle controls, powerful motors, and no speed restriction.

They are frequently marketed online or described by media as "e-bikes" but legally function as unregistered, uninsured motor vehicles. Most cannot be used on public roads without registration, a licence, insurance, and a helmet - requirements which are almost always ignored.

These illegal machines often arrive as kits or fully assembled bikes, imported via online marketplaces with little oversight. Many lack proper certification, use low-quality batteries and chargers, and can present serious fire and safety risks.



Research has found that while one in four Brits would consider buying an e-bike, 23% of people are hesitant to do so due to fear of e-bike fires[7]. The rapid growth seen to 2022 is now slowing, and in 2024 the UK e-bike market shrunk by 5%. The reputational damage done by uncertified imports, and the impact on consumer fears around fire risk, has arguably contributed to this.

7 https://e-bikepositive.co.uk/media-resources/

Confusion around e-bikes

Confusion over what constitutes a safe vs an unsafe product has had knock-on effects into wider industries, too. Some insurers are refusing to cover homes or workplaces with any electric cycle stored indoors for example, and Transport for London recently banned all non-folded e-bikes on its services.[8]

Misperceptions around e-bikes that conflate illegal e-bikes or "fake e-bikes" with certified, legal machines, threatens the gains made in cycling growth and decarbonisation in the UK, with all the benefits that brings. It also threatens the health of the cycling industry, which is worth more to the UK economy than the steel industry.

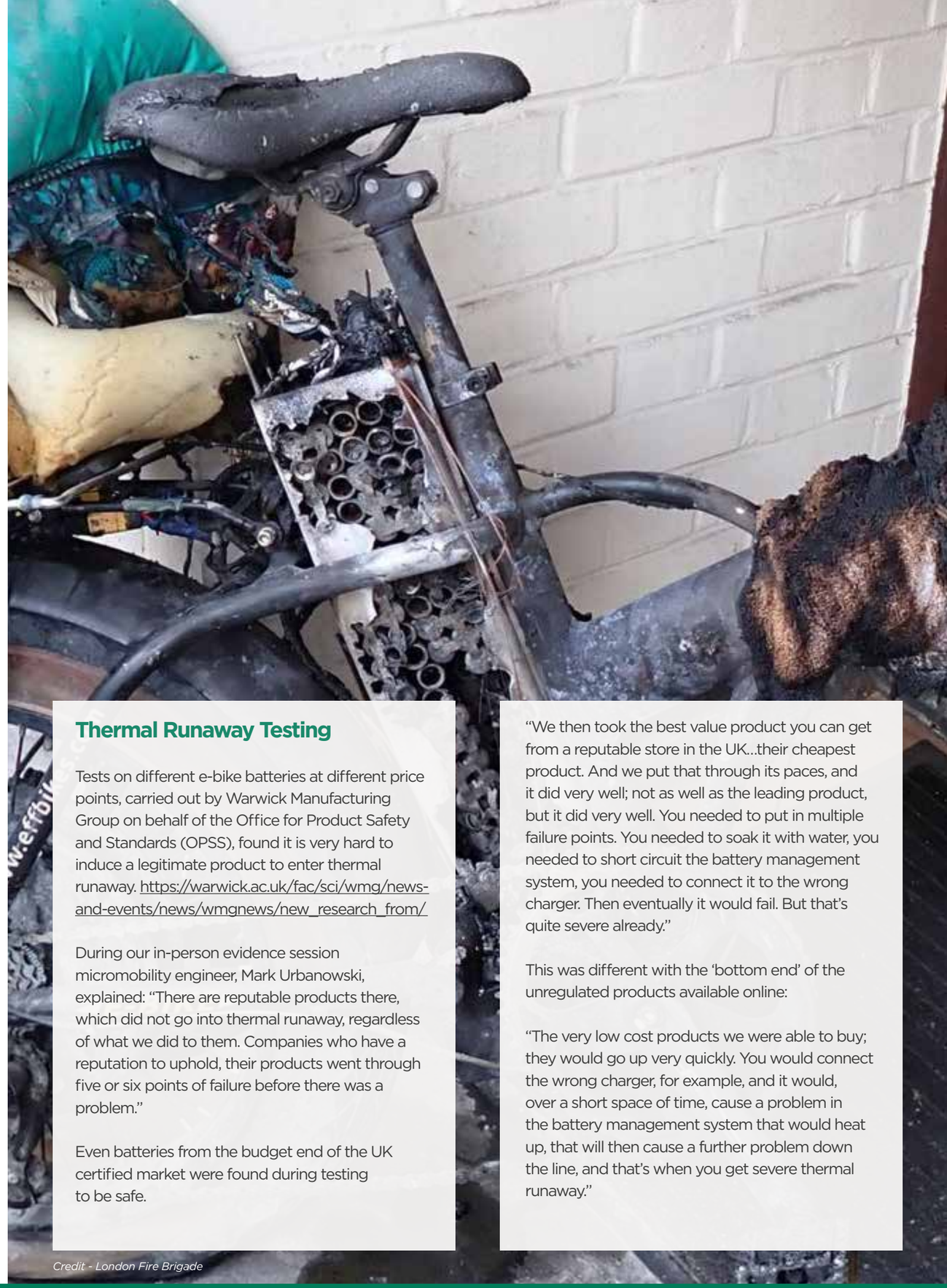
Energise E-bikes, written submission:

"Electric motorbikes carry with them a reputation for dangerous riding, poor mechanical quality, poor electrical quality and fire risk. Electric bikes sold with CE and UKCA safety certification use batteries that contain Battery Management Systems. These are the equivalent to a fuse box in a household property to prevent overheating with appropriate safety cut offs. A house buyer wouldn't buy a property without a fuse box so the same should be true of an e-bike."

The regulated e-bike battery market produces products with multiple failsafe measures that prevent thermal runaway, even under extreme duress. While media reporting conflates 'fake e-bikes' with regular e-bikes, following both collisions and fires, an investigation by an industry journalist found the UK's largest manufacturers had not experienced a single e-bike fire (Source: https://www.cyclingelectric.com/in-depth/are-e-bike-fires-the-threat-were-told-they-are); a finding supported by real-world testing.

The same does not apply to unregulated 'fake e-bikes', often conversion kits attached to the frames of standard bicycles. Despite the fire and road safety risk they pose, and despite their illegality for road use, low-quality, high-powered fake e-bikes, and uncertified batteries and chargers can be bought directly from overseas sellers, via online marketplaces, by the public. This allows unscrupulous sellers to circumvent regulations aimed at protecting buyers.

8 *https://tfl.gov.uk/info-for/media/press-releases/2025/march/tfl-announces-safety-ban-of-non-folded-e-bikes-on-its-transport-network*



Credit - London Fire Brigade

Thermal Runaway Testing

Tests on different e-bike batteries at different price points, carried out by Warwick Manufacturing Group on behalf of the Office for Product Safety and Standards (OPSS), found it is very hard to induce a legitimate product to enter thermal runaway. https://warwick.ac.uk/fac/sci/wmg/news-and-events/news/wmgnews/new_research_from/

During our in-person evidence session micromobility engineer, Mark Urbanowski, explained: "There are reputable products there, which did not go into thermal runaway, regardless of what we did to them. Companies who have a reputation to uphold, their products went through five or six points of failure before there was a problem."

Even batteries from the budget end of the UK certified market were found during testing to be safe.

"We then took the best value product you can get from a reputable store in the UK...their cheapest product. And we put that through its paces, and it did very well; not as well as the leading product, but it did very well. You needed to put in multiple failure points. You needed to soak it with water, you needed to short circuit the battery management system, you needed to connect it to the wrong charger. Then eventually it would fail. But that's quite severe already."

This was different with the 'bottom end' of the unregulated products available online:

"The very low cost products we were able to buy; they would go up very quickly. You would connect the wrong charger, for example, and it would, over a short space of time, cause a problem in the battery management system that would heat up, that will then cause a further problem down the line, and that's when you get severe thermal runaway."

Confusion around e-bikes

In the last year, City of London police seized around around 1,800 illegal e-bikes.

Credit - City of London Police

The Warwick Manufacturing Group (WMG) and Office for Product Safety and Standards (OPSS) report highlights significant differences between reputable e-bikes and disreputable e-bike conversion kits (fake e-bikes). Of the 56 percent of incidents where this could be ascertained, more than three quarters of fires involved conversion kits.[9]

It is worth noting that there are certified, safe conversion kits, and it is vital any regulation does not inadvertently harm reputable brands producing safe, certified products - particularly for specialist cycles used by disabled riders, many of which involve conversion kits. British brand, Swytch, has sold 100,000 e-bike conversion kits worldwide and says its kits have never been the cause of any fires. Its batteries are thoroughly tested and certified to UK, EU and USA battery standards.

9 *https://www.gov.uk/government/publications/personal-light-electric-vehicle-plev-battery-safety-research/opss-regulatory-activity-update-e-bikes-e-scooters-and-lithium-ion-batteries*

Wheels for Wellbeing, in-person evidence:

"The devices that disabled people use, generally are unique or very small runs and certification costs would just make them prohibitively expensive and destroy them as a possibility for disabled people."

It's clear where the fire risk comes from, and the factors driving demand. Purchased at a low cost, often by low-income delivery workers, these substandard machines - e-motorbikes in all but name - are placed under extreme duress. To make ends meet, delivery riders easily cover hundreds of miles each week, placing batteries and motors under prolonged stress, before recharging poor-quality batteries overnight, potentially in shared or overcrowded housing - the point at which combustion of batteries is most likely. When a battery catches fire the results are devastating, and can destroy lives and property.

In addition to delivery workers, the easy availability of overpowered fake e-bike conversions is fuelling dangerous behaviour on the roads, and even crime.

The City of London Police's Sgt Stuart Ford said the force is seeing an increase in 'adapted, put-together cycles', with batteries and a rear hub fitted. Most users are delivery riders; a few are commuters, a few are hobbyists who fit the kits and film themselves.

Sgt Stuart Ford, City of London Police, written evidence:

"Between April 2024 and March 2025 our small Cycle Team (comprised of only seven officers) seized 326 illegal e-bikes. This number reflects the scale of the issue within just one square mile and highlights how prolific the issue has become nationally."

"Proactive operations targeting the illegal use of e-bikes, including pedicabs, are regularly conducted by a range of MPS teams. These are at identified high risk locations across London.

Metropolitan Police, written evidence:

"In the last 12 months the MPS has seized 1,551 illegal e-bikes within London.

"The appeal of EAPCs, and especially illegal e-bikes for food delivery has become increasingly prevalent. Riders are often self-employed and paid per delivery, making speed crucial for earnings. Delivery riders face a choice between obtaining a driving licence, CBT certificate, third-party insurance, vehicle excise duty, annual MoT, and fuel, along with the cost of a moped and helmet, or simply acquiring or modifying an illegal e-bike that often offers comparable speed at a significantly lower costs."

Bicycle Association, written evidence:

"Companies in the legitimate UK cycle industry take full legal responsibility for the safety of the products they supply. We think it's high time that the online marketplaces and gig economy delivery companies take on that same level of responsibility."

"Ministers and Government departments, especially DfT, DBT and the Home Office, must work together to properly regulate both online marketplaces and gig economy food delivery operators, so that both take real responsibility for the unsafe products supplied through their platforms or used to deliver their services."

E-bike fires - the problem

When a battery catches fire, the outcome can be devastating, both in the immediate physical damage to nearby life and property, and in the lasting personal damage of experiencing a fire. This damage can extend to relationships, work and of course home life.

With up to 100 battery cells in the largest e-bike battery packs, thermal runaway can lead to a 'firework display' of explosions as one cell fails and heats up surrounding cells, which explode in turn. The release of toxic, flammable gases is part of this process. While carrying out tests, WMG's Mark Urbanowski said: "We had a blast proof door, and our operator had to run out the second blast door because it was so severe."

The UK is arguably among the markets most affected by e-bike battery fires. While consumer preference for higher quality products in countries like Germany[10] might explain the overall absence of e-bike fires there, other factors are at play. The UK average sales price of e-bikes tend to be about a third lower compared to developed EU markets. This means there's naturally more appetite for poor quality goods. In Germany and France, Government support and subsidies have meant e-bikes are seen as more of a cultural norm; along with better conditions to ride, thus individuals are more likely to see benefits of investing in quality products.

The poor regulation of the UK employment market that fails to protect delivery riders from low pay, often beneath the minimum wage, appears to be driving demand for cheap, overpowered products. This was a repeated theme in evidence submissions.

Warwick Manufacturing Group, in-person evidence:

"The UK is a hotspot for this. In Germany they sell over two million e-bikes compared with 150,000 here, and they don't have these problems.

"In Germany, e-bikes are safe products welcomed on trains, welcomed in buildings, valued as a form of transport."

In the UK, the availability of cheap, uncertified products clearly proves tempting for unknowing, or financially constrained customers.

Boost Bikes & BatteryIQ e-bike conversion kits, written evidence:

"We regularly have responses on social media from members of the public who find low-cost, overpowered and unregulated conversion kits more attractive than our safe and road legal options. We're also aware of home-made batteries being created by combining used cells into larger packs, which is a highly dangerous approach to e-mobility. It is our belief that these conversions which do not have any considered engineering oversight and therefore do not comply with EN15194 or the battery standards within it, present the most significant risk to public safety,"

10 https://wtocenter.vn/german-market/19037-characteristics-of-german-consumer

Credit: Merseyside Fire and Rescue Service

E-bike fires - the problem


Credit: TfL

Legislation needs to keep pace with this rapidly-growing problem. At present enforcement of illegal markets is insufficient, and has failed to tackle dangerous imports, while too little data is available to solve long-term issues surrounding illegal e-bike use and its impacts. The Product Regulation and Metrology Bill, currently passing through Parliament, is a crucial tool to help tackle some of these issues and our recommendations give suggestions for inclusions that can help tackle the issues.

The London Fire Brigade has the most thorough data on e-bike battery fires, and the types of products involved. This data reveals a worrying trend. E-bikes and e-scooters are London's fastest growing fire risk, increasing from just eight incidents in 2019 to 116 in 2022. By 2023 LFB attended 179 incidents involving e-bike or e-scooter fires - one every two days. It is important to note the London Fire Brigade does not record details or differentiate between low-quality conversion kits and EPACs.

According to national data, between January 2021 and September 2023 139 fire records mentioned 'e-bike'. Approximately 10 people died in fires started by e-bikes or e-scooters in the UK in 2023. In addition there have been increased battery fires in bin lorries and waste sites, which are up 70% 2022-2023.

Since 2023 four Prevention of Future Death Reports have been issued by coroners, following fire-related fatalities. These reports note a lack of public understanding of the risks of e-bike conversion kits and unsuitable chargers. It recommends a British standard regulating conversion kits, batteries and chargers that can be sold in the UK.

The National Fire Chiefs Council (NFCC), written evidence:

"According to research, UK FRSs [Fire and Rescue Services] attended 46% more fires linked to lithium-ion batteries in 2023 compared with 2022, and research undertaken by Material Focus shows waste fire incidents caused by lithium-ion batteries are also rising at an alarming rate. Responding to increasing numbers of fires caused by lithium-ion energy technology places FRSs under additional operational strain and exposes firefighters to danger as fires can be explosive and produce toxic vapours."

Electrical Safety First, written evidence:

"Despite growing concern over lithium-ion battery fires, significant gaps in data continue to hinder effective regulatory and policy responses. The UK's Incident Recording System (IRS) does not categorise such incidents, leaving crucial details buried in open-text fields that are excluded from national fire statistics."

"This lack of consistent, centralised data impedes efforts to track trends, inform policy, and launch effective safety campaigns—despite clear evidence of growing risk and the severe consequences of such fires."

Electrical Safety First (ESF) built a campaign around this issue, as part of its Battery Breakdown research. This campaign was supported by 100 national organisations and 1000 local councils and councillors, across the UK. ESF warns the UK is on track to experience an e-scooter or e-bike fire every day this year.

Brompton Bicycle, written evidence:

"Over the past few years, reputable cycle manufacturers and retailers, and other relevant stakeholders, have been working to support consumers in distinguishing between safe e-bike products and potentially dangerous ones through safety campaigns and auditing initiatives. However, the Government needs to take urgent action to support this work by enhancing regulation and stemming the flow of poor-quality products into the UK."

There are currently a number of gaps in legislation, identified by Warwick Manufacturing Group which, if resolved, could go part way to solving the problems seen around purchase and use of substandards products. But this is not the whole answer.

Currently, e-bike products are self-declared as safe by manufacturers, with no requirement for independent verification. This is particularly problematic for high-risk products as it creates significant challenges for national enforcement and oversight. Despite these gaps, current standards are sufficient for the legal, certified battery and e-bike market. Instead, tackling the import and sale of substandard e-bikes to the UK, and enforcement that removes them from the roads and from disreputable sellers, would remove the dangerous culprits of e-bike battery fires.

Warwick Manufacturing Group written evidence:

"Safety should not need to be a factor in consumer purchase decisions, it should be a given, ensured by standards, manufacturer design & quality, and legislation & enforcement."

Additional Recommendations on Product Safety

In addition to our key recommendations, there are specific technical issues which need addressing urgently by Government, potentially though the Product Regulation and Metrology Bill.

There are currently no standards relating to e-bike conversion kits - which is concerning given their contribution to fires. The person carrying out the conversion becomes, in law, the legal manufacturer, often without realising it.

In addition, a gap in the current e-bike battery standard EN50604 means some products on the market lack a cutoff to prevent overcharging of batteries. This, WMG says, 'is likely to have been a factor in some UK PLEV fires'.

A further inconsistency in the standards for e-bikes vs e-scooters can cause confusion over what is legal and safe for users.

Requirements for product labelling differ between batteries and chargers, and different battery standards, further confusing users over which chargers and batteries can be used together.

Insurance and transport - a crisis for active travel

Such is the seriousness of the risk from fake e-bikes, some insurers now refuse to provide cover to any e-bike, and in 2025 Transport for London issued an outright ban on its network. The former has implications for residential and workplace e-bike storage and can prevent users from keeping and using an e-bike. The latter could prevent legitimate e-bike users travelling for work or leisure, or caring duties. Both effective bans have serious implications for disabled cycle users for whom e-assist can be an essential part of a cycle's function - and their personal mobility, independence and general wellbeing.

Insurance premiums for cycle retail outlets servicing or selling e-bikes have rocketed, risking the viability of those businesses. Cycle industry sources say this is contributing to an already challenging financial situation in the industry and forcing business closures, with one cycle retailer reportedly quipping:

Mark Sutton, Cycling Electric written evidence:

"We figured it would be easier to get insurance to handle nuclear waste. [Our insurer's] underwriters refused us on only mentioning e-bikes with no further explanation. No exclusions, no handling, nothing, just 'e-bikes'."

With 60% of cycle retailers claiming to specialise in electric bikes in 2023, a figure that is rising year-on-year, this issue has serious ramifications for the health of the cycle industry. According to one industry journalist, 95% of UK bike shop staff have dealt with customer concerns about e-bike fires - and a quarter of retailers believe the issue has impacted trade. Insurance for conversion kits is particularly hard to come by, because of the reputation of illegal conversion kits.

It is possible for insurers to distinguish between legal and fake e-bikes, but the general market says it needs help doing so. Specialist cycle insurance provider Bikmo found fire incidents involving legal e-bikes are incredibly rare, occurring with an incident rate of approximately one in 50,000 e-bikes per year. Another specialist cycle insurance firm, Laka, found the rate of e-bike and escooter fires to be similar overall to vehicle fires: 0.011% compared with 0.0012% for electric vehicles, and 0.1% for vehicles powered by internal combustion engines.

The wider, non-specialist insurance industry, however, sees the issue differently, with providers increasingly refusing to insure, or raising premiums drastically where e-bikes are involved.

Mark Sutton, Cycling Electric, written evidence:

"I have had multiple bike shops and readers of Cycling Electric confirm to me that workplaces are now banning people cycling e-bikes to work, with major employers and building managers such as Morrisons, PWC, More London, Canary Wharf denying employees the right to e-bike to work."

"One prominent London retailer told me he had '50 customers that we have sold e-bikes to in the PWC building who have now been told they cannot cycle them to work. Most are now looking to sell, which further deflates struggling e-bike shop trade as the second-hand market only grows.'"

Insurance and transport - a crisis for active travel

The insurance industry says it is willing to reconsider its position on e-bikes, given clarity on safe products and action to prevent dangerous products entering the UK.

Association of British Insurers, in-person evidence:

"What we would request as an insurance industry is that there'll be much more stringent legislation that goes in and tests e-bikes... if they're coming into the UK. It shouldn't be up to the police officers to take them off the streets. They shouldn't be making it to the streets in the first place."

"Having something with a government standard, whether it's a kite mark or something similar, would allow the insurance industry to have a much greater ability to estimate the risk of a particular e-bike causing a fire. I think there also needs to be significant changes in terms of the liability for the people who are bringing in illegal e-batteries... whether that is from a criminal justice point of view, or whether it's fines."

The position of Transport for London is similar, in terms of the certainty needed to reduce the risk profile of e-bikes, to reverse its own ban. TfL says the current legislative and regulatory framework is not sufficient to give it confidence e-bikes arriving at the ticket barriers are safe and certified. Following a serious e-bike fire on one of its platforms, in which the rider was about to board a train, and following research with London Fire Brigade, TfL made the decision to ban all e-bikes from its network in January 2025. The risk, TfL says, relates both to the fire itself and the potential for mass panic or evacuation that smoke in a confined space can inspire on a busy transport system.

Transport for London, in-person evidence:

"We recognize that the risk is highest with converted e-bikes, but we need a measure which is adaptable to a mass transit organization which can process literally millions of journeys a day. And at the moment, it's not possible to easily distinguish between a safe bike and a not safe bike."

TfL said it considered making exceptions for disabled and adapted bikes, ahead of the ban, but concluded such an exception was not feasible. While TfL has clarified e-bikes would be permitted on the network if the battery is disconnected, this ban has particular impact on disabled users, who might need the e-assist to navigate the station - and for whom disconnecting the battery would render their mobility aid inoperable for them.

In the meantime, the impact on disabled cyclists is marked. For a disabled cyclist their cycle may not only be their means of transport but an essential mobility aid that is key to their independence and wellbeing. Being unable to store this mobility aid at home, or at work, or to travel with it by train, could threaten that mobility, as well as the viability of employment, and materially impact their physical and mental health.

Disabled cycling charity, Wheels for Wellbeing, in-person evidence:

"Since the start of this year, we've had requests for support from individuals or reports from individuals about housing providers banning all e-cycles from their buildings, including designated cycle stores, large employers banning a whole range of battery powered e mobility devices from their premises."

Wheels for Wellbeing, the disabled cycling charity, expresses alarm at the public transport and housing bans of e-cycles. In written and oral evidence Wheels For Wellbeing spokespeople described effective bans extending to other transport networks, albeit unofficially. Disabled cyclists have reported being refused entry to trains on their powerchairs, because of the lithium ion batteries on board. This includes public transport providers without official e-bike bans. It is unclear if staff are acting of their own initiative or if rail operators have warned staff to be vigilant for e-cycles.

In addition, a growth in Public Space Protection Orders, geographically restricted bans on a range of 'antisocial' activity, including e-bike use, is inadvertently affecting disabled cyclists. Introduced in town centres in response to antisocial riding by delivery riders on high-powered e-bikes, such bans impact anyone who cycles. Disabled cyclists say this discriminates against them in particular: some disabled cyclists will not present as disabled until they dismount. Research has found that, for most disabled cyclists, cycling is easier than walking.[11]

Any measure to certify e-bikes needs to bear in mind the market for adapted cycles, and that the cost of any scheme doesn't negatively impact on the customer, or on the cycle industry.

Wheels for Wellbeing, written evidence:

"Failure to appropriately deal with safety problems associated with e-cycles is causing Disabled people significant problems. These problems can be expected to increase over time, with adverse impacts on Disabled people's mobility and health."

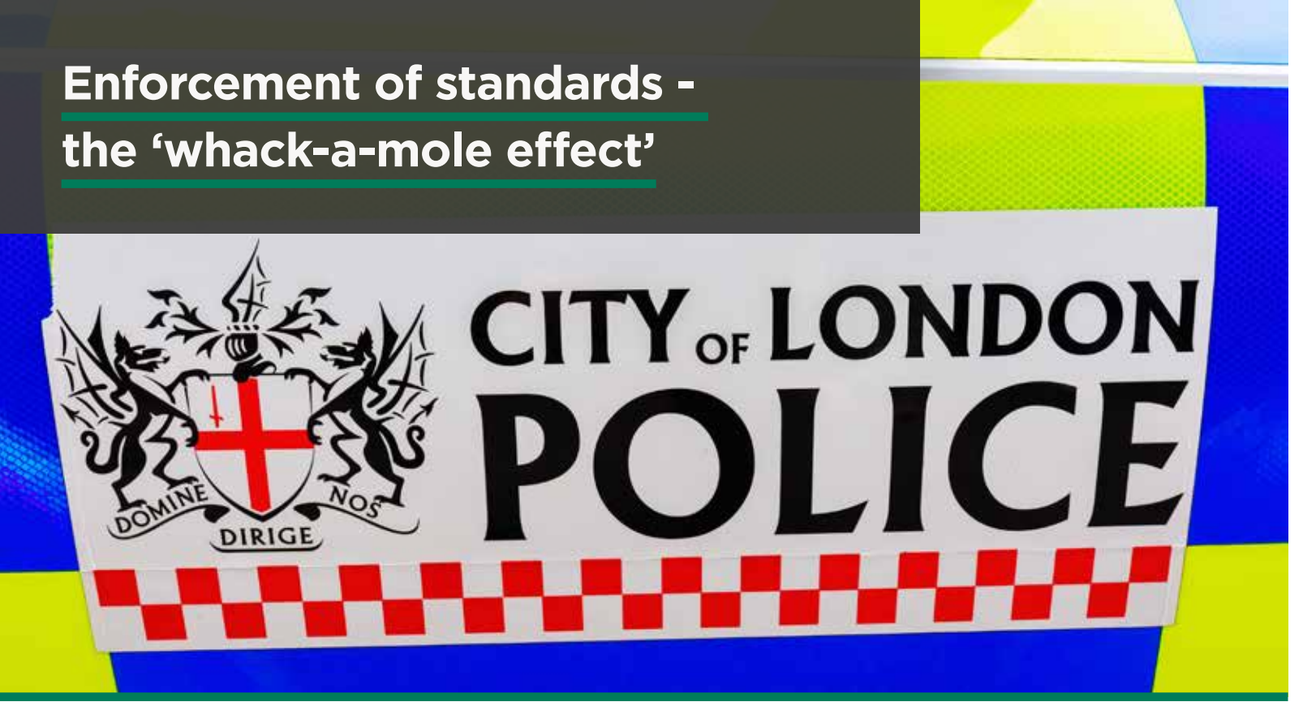
"Appropriate regulation of gig economy platforms and their relationship to their riders/drivers is essential for the protection of Disabled users of pavements as well as Disabled cyclists and prospective cyclists."

Wheels for Wellbeing sets out some solutions to grey areas in legislation in its 'My Cycle, My Mobility Aid' document.[12]

11 https://wheelsforwellbeing.org.uk/survey-uks-disabled-cyclists/

12 https://wheelsforwellbeing.org.uk/our-campaigns/campaigning/my-cycle-my-mobility-aid/

Enforcement of standards - the ‘whack-a-mole effect’



The Office for Product Safety and Standards (OPSS) says it is confident that products complying with the current standards are safe. While the bikes themselves are covered by machinery regulations, the batteries are covered by the General Product Safety Regulations and conversion kits are covered by the electrical equipment safety regulations, the numbers of fake e-bikes evading these standards is growing.

Unscrupulous manufacturers don’t always comply with those regulations. As the national product regulator OPSS ensures businesses understand their obligations, and “put in appropriate measures to detect and deter non-compliant products and manufacturers seeking to circumvent the rules”. While the OPSS has successfully identified unsafe products and required those products to be removed from platforms, products are too often then relisted under different names or accounts. The process has been described by Electrical Safety First as ‘the whack-a-mole effect’ - and argues products need to be prevented from entering the UK market in the first place.

OPSS says: *“clearly there’s a lot of sales taking place online, and it’s important that the legislation keeps up to date with that”.*

OPSS is currently taking the product regulation and metrology bill through Parliament to address some of the regulatory gaps. The aim of the Bill, OPSS says, is to futureproof the supply chain in terms of risks and hold manufacturers, importers, distributors and online marketplaces to account, “to make sure that only safe products reach consumers here in the UK”. Some of the evidence submitted suggested a reversal of ‘anti-dumping’ tariff removals for products from China, for ebikes, would help alleviate the issue.

Once on the roads, police can enforce against use of illegal fake e-bikes using section 165 of the Road Traffic Act, which relates to driving a vehicle with no insurance. This legislation treats fake e-bikes like mopeds or motorcycles, and allows police to seize them and put points on a rider’s license or, if they don’t have one, create a ‘ghost license’ in the meantime.

Councils also have some powers, but resources to enforce are limited, and fake e-bike use, particularly among delivery riders, represents a strain on already stretched resources. Safe disposal of these unsafe products is among the issues raised.

London Councils, written evidence:

“Some boroughs have been trialling ways for curbing the sale of illegally modified e-bikes. For example, Islington council successfully used Trading Standards legislation to prosecute a vendor selling illegal vehicles. The local trader was given a six-month custodial sentence for importing nearly 1,000 unsafe e-scooters and e-bikes. However, once seized, there continues to be both logistical and safety issues given the risk of fire.”

“Close collaboration between boroughs and police is required in order to enforce illegal modification of e-bikes. However, resource and capacity constraints in the Metropolitan Police Service (MPS) mean that enforcement in this area is a very low priority and the number of officers with the correct training are insufficient. Distinguishing what is legal and what is illegal is extremely difficult without actually stopping the rider and examining the vehicle closely. There are gaps in police knowledge and ability to identify illegally modified e-bikes.”

Transport for London, written evidence:

“Enforcement currently occurs too late in the process to be fully effective, as illegal conversion kits and off-road bikes continue to enter the market unchecked, placing the burden on an already under-resourced police force to monitor their illegal use on the roads. Concerns have also been raised about the logistical challenges raised by transportation and storage of seized illegal e-bikes, including management of the fire/explosion risk, and the significant cost of storage.”

Road safety issues

While legal e-bikes limited to 15.5mph are safe to use on cycle tracks and shared use paths, fake e-bikes with throttle-operated acceleration and high-powered motors capable of achieving far greater speeds pose a real threat to other road users. This is particularly true for those on foot or in wheelchairs, for children and older people who may be more severely injured in a collision. A lack of safe, separate cycling infrastructure risks riders mixing with live traffic, or pedestrian traffic, or a mix of both. When travelling at high speed, this switching between walking and motor traffic infrastructure poses its own risks.

There is currently no clear distinction made in official statistics between collisions involving fake e-bikes versus certified EAPCs. This can skew the relative risk of these vehicles in official figures, and in the public's mind. In addition, roads police have suffered substantial cuts in the last decade and a half, making additional enforcement challenging.

PACTS, written evidence:

"What makes [enforcement] particularly difficult is that the UK is currently in a challenging enforcement environment. Previous research from PACTS on road policing showed that in the decade leading up to 2020, the number of roads policing officers decreased substantially.

"While the total number of police officers fell by around 13% from 2010 to 2020, there was a 22% reduction in the number of dedicated roads policing officers between 2010 and 2014, and a further reduction of 18% from 2015 to 2020. In 2019, dedicated roads policing officers made up only around 4% of total force strength. Furthermore, of those dedicated officers, many are often "double-hatted" – responsible for carrying out more than one function. This means that resources will naturally be targeted to the most high-risk areas, which may not include enforcing illegal e-moped use."

This lack of resourcing to tackle the problem, both at source and on the streets, leaves local authorities to pick up the pieces.

London Councils, written evidence:

"Councils have concerns about the implications of the rapid expansion of the gig economy in the capital, especially in relation to road safety."

"Delivery companies must take more responsibility for rider safety and behaviour. Critical to this is looking at the way riders are paid. Currently, riders are incentivised to complete as many rides as possible, which encourages dangerous behaviour and the modification of bikes to make them faster.

The growth in delivery riders with limited road safety training using high-powered fake e-bikes is causing safety concerns in town and city centres, including in locations where riders congregate. While the advent of cheap home delivery has arguably driven business to high streets, there are downsides. A lack of effective management of the delivery system from restaurant to customer can have a negative impact on those same high streets. Those downsides include riders blocking pedestrian areas and riding at high speed in town centres.

Leeds City Council, written evidence:

"Leeds City Council is concerned with the impact of delivery riders on the safety and attractiveness of our main city centre 'high streets'."

"Delivery rider behaviour is the most complained-about issue for the Council's City Centre Management Team. In a survey of 867 people about 'city centre perceptions' Delivery Riders were listed as the 2nd most negative thing in the city centre, behind only rough sleeping/begging."

"On the one hand, the food delivery model is vital for the very survival of many high street hospitality businesses because it provides a much needed revenue stream, but on the other hand, the speed and behaviour of delivery riders is putting people off from visiting the high street, which will impact negatively on footfall and sales for some of those same businesses."

London Councils, written evidence:

"Riders mounting pavements, parking in unacceptable locations and congregating hinder other road users and pose significant challenges for local authorities."

"There must be greater discussion with delivery companies on how to incentivise riders to utilise allocated parking bays. For example, investigating the use of geofencing linked with delivery apps, meaning drivers must be within designated parking bays before being able to 'check-in' to collect their deliveries."

Cargo bikes

While there is an industry standard for safe cargo bike use, and Transport for London introduced best-practice standards for professional riders, there are also operators using untrained riders who might be working under the same grey area of employment legislation, with no accountability for their behaviour, or any minimum skill level requirement. It is recommended a cargo bike training standard is introduced, which could help set a standard across e-cycle use for business purposes. The Bikeability Trust provides such training.

Halfords, written evidence:

"International work is ongoing on a comprehensive safety standard for cargo cycles, EN 17860.

"Halfords notes that "Twist and Go" EAPCs are already permitted to be used legally under the current regulations with a full speed throttle, on the condition that type approval for each cycle is obtained. This is typically done through the Motorcycle Single Vehicle Approval (MSVA) process in the "250W LPM" category. Whisper is an example of a vendor providing fully legal throttle e-bikes under the current rules."[13]

"Finally, we are concerned users or more unscrupulous suppliers may abuse these regulations simply to make normal bikes or e-bikes more powerful while disingenuously claiming a normal bike as a "cargo" bike."

Consumer confidence

While consumers, the insurance industry and employers are rightly concerned about the dangers posed by substandard e-motorbike products, the regulated market is considered safe. Products sold legally in the UK have multiple failsafe protections to prevent e-bike battery fires, as discussed. A lack of clear delineation between legitimate and fake e-bikes has done reputational damage to a safe and regulated industry, and users of regulated e-bikes.

Effective workplace and housing bans on e-bikes, led by insurers' caution on the topic, is preventing users of legitimate bikes from accessing and using this low-cost, low-carbon means of transport, and the opportunities e-bikes can afford. This problem is marked for disabled users, for whom electric assist is not an added extra but an essential part of their mobility, without which they cannot travel, and miss out on all the related benefits.

13 https://wisperbikes.com/full-throttle-option/

This misinformation, and the barriers to ownership and use it poses, is holding back the industry and growth of active travel.

The bicycle industry has responded proactively to the threat of fake e-bikes,working together on an 'E-bike Positive Retailer Pledge', initiating a safe e-bike registry, and an 'e-bike Positive' public information campaign (https://e-bikepositive.co.uk/). The Department for Business and Trade and the Department for Transport launched a 'Buy Safe, Be Safe' campaign to raise awareness of unsafe micromobility products sold online and urge the public to buy safe products from reputable sellers. This work has thus far unfortunately been unable to tackle misperceptions around what constitutes a safe product and the broader impact of these misperceptions on the industry, users and potential users.

Halfords, written evidence:

"Even the safest, fully legal e-bikes are being seriously reputationally damaged by association with fire risk and unsafe riding of products completely beyond the UK industry's control. The sustainability of the legitimate e-bike category in the UK is at serious risk as a result. E-bike sales have fallen significantly in recent years – in stark contrast to the worldwide trend".

"Placing pedals on a vehicle that can be driven entirely with a throttle does not, in any pragmatic sense, make it a bike. Halfords is of the view that the government should create a new category of throttle-driven e-mobility solution. This was the government's plan previously and we see no reason why this should change".

Bicycle Association written evidence:

"We have grave concerns about the ease of which conversion kits can be obtained, mainly via online market places as they can dangerously alter a conventional pedal bike. For many users, especially in the gig economy, if power is being added to already electrically assisted pedal cycles the loadings applied will be even more extreme than those for which it was designed, increasing the risk of dangerous system failures.

"Fitting a conversion kit to a standard bicycle frame increases the risk of dangerous system failures. This is because typical bike frames and brakes are not appropriate to handle the extra weight and power of an e-bike."

Tandem Group, written evidence:

"The term 'e-bike' has been misused by the media, police forces and government and is misleading in the extreme. Applying this term to illegal and dangerous motorized bikes which are not pedal assisted, are overpowered, travel at dangerous speeds and typically manufactured by a home mechanic with no testing gives legal pedal-assisted e-bikes a bad name."

The rise of fires, and of poor rider behaviour and crime associated with fake e-bikes also risks harming the wider active travel agenda. Public support for this agenda is generally high but there is evidence people are beginning to equate dangerous and illegal behaviour involving fake e-bike riders with cycling as a whole. This risks turning the public and policymakers against what is otherwise a healthy, cost-effective and non-polluting means of transport.

Bicycle Association, written evidence:

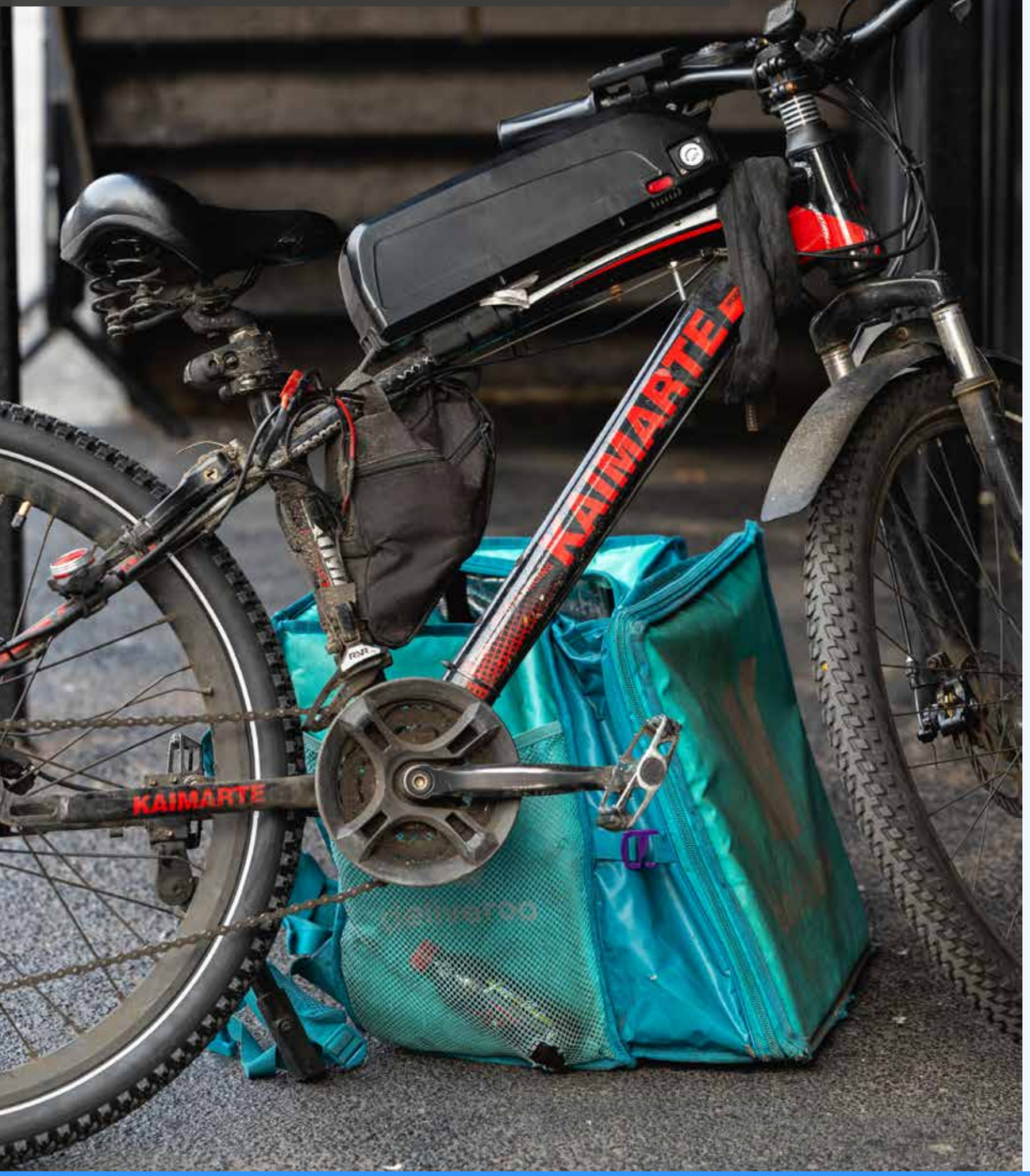
"The BA is also pleased to be participating in the development of a fast-track standard (PAS 7250) which is expected to address battery and conversion kit safety, when published (which may take around two years)."

Activate Cycle Academy, written evidence:

"Despite ongoing initiatives from training providers and law enforcement, there is currently a lack of clear, coordinated legislation, guidance, and strategy at national and local levels regarding e-bike and e-scooter use. This gap in governance heightens risk not only to riders and the public but also to first responders and technicians handling these vehicles.

"One critical area of concern is the end-of-life management of e-bike batteries. Lithium-ion batteries, if not disposed of correctly, pose significant fire and environmental hazards. There is currently no unified guidance on how to safely and sustainably collect and recycle these batteries"

Where is the problem coming from?



There is broad agreement across the piece that illegal and dangerous e-bike use is being driven largely by the business practices of delivery app firms that place pressure on riders to make as many deliveries as they can, simply to earn a minimum level of income. Unfortunately, cheap, high-powered e-bikes bought online fill this function with a low financial outlay. A quick search on Amazon.co.uk returns an e-bike with 40mph speeds described as 'for city commutes', and a 2000w bike with a throttle pictured being used on city streets. Another search found an unsafe charger with an unfused clover leaf plug, and multiple charging cables supplied, both of which are considered a fire risk. A spokesperson for Amazon, in our in-person session, told us;

"When thinking about product safety, we don't want a single product on the store which is unsafe. And to be very clear, we have a vested interest in making sure products are safe because if the customer has a poor experience or cannot themselves trust what they're buying, they won't come back."

"In September 23 we introduced controls where we would ask sellers of these e mobility products to provide us with a declaration of conformance, which spoke to the safety of that product and compliance with any relevant regulations, we also additionally asked for pictures of the UK, CA and CE markings of those products, and pictures of safety manuals and instructions. Now, I'm not saying that is or was far enough, because it became clear to us again, speaking to experts, including the London Fire Brigade. As of last year, we now require test reports from accredited labs based, either in the UK or EU. We made that change, I think, in around April last year, and since we did, we significantly reduced the selection of these products which were available"

When asked specifically about a clover leaf plug found on its site Amazon said: "That should not be anywhere near the Amazon store, it's clearly not safe. I know for clover leaf plugs in particular, we do have regular manual audits to look for these products."

The charger in question was removed from the site within two days once highlighted by our inquiry.

The Amazon spokesperson added: *"In terms of manpower and investment, it is something in the region of £1,000,000,000 (a billion) and 10,000 people, we spend on product safety and other safety issues associated with the online store."*
In terms of banning fake e-bikes from its stores, similar to its action on hoverboards, Amazon said: *"if we were asked directly by the OPSS, we would move very quickly".*
Online marketplaces continue to act as a gateway for unsafe and non-compliant electrical products to enter people's homes, compounding the fire risk posed by e-bikes. In 2022, in a snapshot study, Electrical Safety First (ESF) investigated the sale and availability of potentially dangerous e-bike chargers and found nearly 60 listings by third-party sellers across four major platforms: Amazon, eBay, Wish.com, and AliExpress.[14]

These chargers were marketed for e-bikes, e-scooters, or hoverboards, and all failed to meet UK plug standards. Many lacked fuses, an essential safety mechanism to prevent electrical faults from escalating and raised serious concerns about the quality and safety of internal components. Products that do not meet the UK plug standard are unlikely to have undergone adequate safety testing, posing risks including electric shock and fire.

This problem of fake e-bike sales has escalated dramatically in recent years due to business practices that evade employment laws set out to protect workers.

City of London Police, written evidence:

"Illegal and unsafe e-bikes... are being adopted by both criminals and gig-economy and delivery riders"

"The pressures of gig-economy work significantly contribute to illegal e-bike usage."

Transport for West Midlands, written evidence:

"Poor-quality or illegally modified E-bikes, often used by uninsured riders, have caused many battery fires, and gig economy delivery workers especially frequently use conversion kits, due to their financial constraints and the pressures they are under, through the pay per-delivery model which then undermines public safety and active travel goals."

14 https://www.electricalsafetyfirst.org.uk/media-centre/press-releases/2022/09/dangerous-e-bike-charging-devices-for-sale-online-via-amazon-marketplace-ebay-wish-com-aliexpress-charity-warns/

The role of delivery platforms and the gig economy

London Councils, written evidence:

"Many delivery companies are set up as Platform companies, with riders classed as self-employed so companies are therefore not required to provide health and safety measures. Platform companies only take an advisory role in safety standards for riders, not mandating vehicle mode or collision reporting, therefore avoiding any financial implications. This means there are no checks and balances in place for the safety of the vehicles used for deliveries, the riders themselves and the impacts on other road users.

Delivery riders often sit outside of rules and protections aimed at maintaining safety and worker rights. For employers there is a legal duty to manage health and safety risks to workers, including those in the gig economy riding powered two-wheelers or bicycles on the roads as part of their work. This includes providing adequate training, at no cost to the worker, and ensuring company policy doesn't put riders at risk by, for example, setting unrealistic delivery times.

The Health & Safety Executive guidance on gig economy workers states:[15]

"All workers are entitled to work in an environment where the risks to their health and safety are properly controlled.

If you are a gig, agency or temporary worker then your health and safety is protected by law and employment businesses/agencies have a duty to make sure that they follow it."

However, the section on driving or riding for work under the gig economy guidance links to Health & Safety Executive information for "Employers and workers who drive or ride".[16]

This is potentially confusing because The Supreme Court of the United Kingdom recently ruled that app-based delivery riders are independent contractors and therefore do not have worker status.[17] This means they do not qualify for certain rights and entitlements, including holiday pay - and the right to protections from risk while carrying out tasks.[18]

However, The Bikeability Trust submitted evidence that disputes whether not having worker status exempts delivery companies from Health & Safety responsibilities:

The Bikeability Trust written evidence:

"These health and safety responsibilities may mean that the preferred means of contracting in the delivery companies by self-employed status do not hold a defence against obligations from Health and Safety. As the duty holder, delivery companies should be held to enforceable action from the HSE on their application of this guidance."

What is clear, however, is that the current situation is unacceptable. As a result of the current status quo for delivery riders, we heard in evidence sessions that riders face exploitation and precarious working lives. While delivery app companies claim riders enjoy the freedom of freelancing, or gig work, this freedom comes at a cost, and is sometimes not chosen, but accepted as a last resort by those locked out of other forms of employment.

Just Eat, written evidence:

"Performance management for self-employed couriers in the gig economy differs from that for those in traditional employment. Independent contractors have complete control over their own work. As such, there are strict legal limitations around performance management. For example, Just Eat cannot dictate couriers' equipment choices, beyond requiring that couriers hold a licence and relevant insurance for their chosen category of vehicle."

Our in-person session and written evidence submissions revealed the work for delivery apps has changed since the pandemic, and the demographic of riders with it. Pay for riders per drop has declined in recent years, requiring ever longer shifts with ever more deliveries per hour in order for a rider to earn sufficient money. This has drawn in riders for whom there are few or no other options for work, either because of language barriers, a lack of access to a car, or because they are not legally allowed to work in the UK.

According to a small-scale survey by climate charity Possible, just 19% of gig economy riders were making the equivalent of a London Living Wage, and riders were commonly working 12-14 hours a day 'to make ends meet'. Meanwhile, living costs have increased, including the cost of replacing equipment relating to the bicycle. While delivery riders appreciate the flexibility the work offers, other elements of delivery company claims do not correlate with riders' real-world experiences. Low pay and unrealistic drop times force riders to take risks.

Climate charity, Possible, written evidence:

"[Delivery riders] described how low fees, the impact of delivery schedules prescribed by the apps, and the anxiety of risking customer complaints if they took too long, compounded to increase the stress of the job, and impact their mental health and quality of life."

The Bikeability Trust sums it up: *"In our view, the structure of the 'gig economy' delivery sector —low pay, self-employment, and minimal oversight—is at the root of much of this safety problem. This must change and dovetail with important solutions such as enforcement and education."*

Rider Shaf Hussain, who gave evidence in-person, vividly described a delivery rider's working life. "Over the past nine years, I've never seen a pay rise… nine years ago I could make £120 within a couple hours. Now it takes me an entire day just to make that."

He adds the expectations of the apps are at times unrealistic, and do not take into account real-world conditions. The roads have become more complex to navigate, with more people on Lime bikes, pedestrians crossing the road looking at their phones, and events that close the roads. All of these things impact delivery times.

"A lot of platforms, they say they pay minimum wage. Let me put it, they don't pay minimum wage if I stop at every single light. The only way I'm going to make minimum wage is if I run every single traffic light between me, the restaurant and the customer."

15 *https://www.hse.gov.uk/vulnerable-workers/gig-agency-temporary-workers/workers/index.htm*

16 *https://www.hse.gov.uk/roadsafety/index.htm*

17 *https://www.supremecourt.uk/cases/uksc-2021-0155*

18 *https://natlawreview.com/article/no-entitlement-worker-rights-when-there-power-substitution-uk-supreme-court-rules*

The role of delivery platforms and the gig economy

Rider Shaf Hussain, IWGB in-person evidence:

"Every single day that we go out for work we're chasing death, we're literally dodging traffic and chasing death. I've probably had about 15 accidents, and unfortunately, these companies won't take culpability unless there's policy makers and laws in place that should give us that protection."

While delivery companies - none of whom opted to give evidence to us in-person - pointed out 'onboarding' training is given to riders, it is clear from evidence submitted, and from real-world observation, that this training is inadequate, or it is not adequately managing risks to riders on the roads, and that riders are engaging wholesale with illegal e-bike equipment and dangerous behaviour on the roads.

Just Eat, written evidence:

"If we are presented with evidence that our high standards are not being met, which includes couriers using illegally modified e-bikes, we take swift action. We have zero tolerance for criminal behaviour."

"We regularly remind couriers about the dangers of illegal modifications and have shared guidance from Fire England and the Department for Business and Trade. The current framework for independent contractors presents limitations to the vehicle checks Just Eat can enforce, hindering the tracing of illegal modifications. Just Eat believes a clear regulatory stance and strong enforcement are crucial to tackling this issue in our industry and for all road users."

Evidence shows clearly the driving force behind riders' choice to use cheap, substandard equipment is. purely economic.

In a survey of 211 delivery couriers, and 39 in-depth interviews in Scotland[19], 62% of riders had modified their e-bikes to increase speed.
These modifications often involve de-restricting the motor output or altering the battery capacity, researchers say.

"Riders are generally aware that such alterations make the bikes illegal and uninsurable. Yet these changes are rationalised by workers as necessary for financial survival, given the pay-per-order model and the need to complete as many deliveries as possible in a short time."

"One rider explained: 'The platform expects us to be faster every day. I modified my bike because if I don't keep up, I get fewer orders the next day. They don't say it directly, but we all know how it works.'" Research by Dr Nadia K. Kougiannou, Associate Professor of Work and Employment at Nottingham Business School, Nottingham Trent University, and Dr Pedro Mendonça, Associate Professor of Work and Employment at Heriot-Watt University.

Deliveroo says it requires riders to follow all traffic laws and road regulations, and that compliance with safety standards is a condition of a rider's service agreement. This includes the vehicle they use. Deliveroo says it provides road safety information to every rider, and that it is revamping the onboarding process for riders. On e-bikes, it says information is provided to riders on safe machines and *"If we discover a rider is driving dangerously or using an illegally modified bike we will stop working with them immediately. We have a dedicated team to handle any public authority requests and police forces contact us through a dedicated email address."*

Uber Eats, meanwhile, says 'the safety of couriers, customers, merchants and the wider public is a top priority', and 'all couriers must adhere to our Courier Terms while on trip with Uber Eats, that

19 (Mendonça, P, Hadjisolomou, A & Kougiannou, N 2024, Fair Gig Work in Scotland? A Review of Employment Practices in the Scottish Food Delivery Work. https://doi.org/10.17861/0GNN-MW97).

includes observing applicable laws and road safety regulations such as The Highway Code."
While delivery companies say they have dedicated teams to tackle the use of illegal e-bikes among riders, and that they provide safety education to couriers, including safe equipment, these measures have roundly failed to tackle the problem.

Interviews conducted by the Bikeability Trust found riders were not aware of the laws around throttle-powered e-bikes, or maximum speeds. Even those that were aware felt they needed to break those laws in order to complete the job, in a grim calculation of risk vs reward. Those riders were working in excess of 40 hour weeks on the roads, in all weathers. Their experience tallies with other research surveying riders' working lives.

Sustrans, written evidence:

"Recent research into the experiences of cargo bike riders in London outlines key recommendations to improve working conditions in the sector, including that delivery companies should provide riders with fully functional cycles and regular mechanical checks."

Efforts to curb the negative impact of this business model at city or regional level, while well-intentioned, have limited scope to tackle the root causes. A number of cities, including Leeds, London[20] and Greater Manchester, introduced voluntary food delivery riders' charters or codes of conduct to tackle road and fire safety issues, but without clear enforcement, and tackling the underlying issues driving the problem it is uncertain the extent to which this will solve the problem.

Leeds City Council, written evidence:

"The large majority of these bikes [in the city centre] are delivery bikes, and the large majority of these are large, fast, heavy (and illegal) e-bikes."
"The capacity for the City Neighbourhood Policing Team in Leeds has not been sufficient to take consistent action against this issue."

Transport for Greater Manchester, written evidence:

"In addition to the safety of e-bikes, we would like to work with government to improve the industry's employment and verification practices to address account sharing, where couriers can substitute deliveries to others who may not have a right to work in the UK. FDC [food delivery companies'] business models currently rely on riders themselves to confirm their eligibility to work, and this can enable illegal working. Alongside this, we would like to cover how to reduce the time pressure on riders to make deliveries, driving hours, and platforms' responsibility for their riders' safety."

20 *https://content.tfl.gov.uk/meal-and-grocery-delivery-company-motorcycle-road-safety-charter-acc.pdf*

The role of delivery platforms and the gig economy

Delivery firms don't acknowledge the relationship between pay and risk taking by riders; however, evidence presented to us suggested there is a clear relationship between the two, and it threatens to undermine worker protections in the UK.

Callum Cant, author of Riding for Deliveroo, and senior lecturer at Essex Business School, points out early claims by delivery companies that they would reach profitability by operating automated food production and delivery have in reality been replaced by a system he compares to the 'sweated labour' of England's 1840s industrial revolution.

"I've worked with steel workers, I've worked with healthcare assistants. I've worked with people all over the UK economy. I've never seen people on a daily basis as badly exploited as food delivery riders. We are talking about very true exploitation."

"People talking about working 14 hour days, this is exactly the kind of thing you read about in the industrial revolution; this is sweated labor; all of the protections associated with the employment relationship are meant to prevent exploitation, and that's completely damaged. What's going on here is as bad, if not worse, than many of the things you read about in the 1840s".

"When you see people riding really badly, when you see people coming across pavements or going through red lights, that's because they're constantly trying to make enough money to survive and I would draw a direct link between their desperation and the fact they're taking risks and cycling unsafely, and the profitability of these platforms."

Researchers found that while *"platform food delivery serves as a crucial opportunity for labour market entry, with 48% selecting it as their primary income source*", there are serious issues with this type of work.

Migrant workers, who comprise a significant portion of gig workers, "face barriers such as qualification recognition, visa constraints, and language proficiency, limiting their chances of moving to more secure employment," they said.

Dr Nadia K. Kougiannou and Dr Pedro Mendonça Nottingham Trent University, written evidence:

"A key finding of our research is the widespread practice of informal subcontracting via account renting. Many riders, particularly undocumented migrants, pay weekly fees to rent app access from a registered courier. This informal sub-contracting system allows platforms to claim plausible deniability, as they only recognise the named account holder.

"Fees for account rental typically range between £70 and £120 per week. These substitute riders are often uninsured, use modified or shared e-bikes, and have no access to safety training or direct contact with platforms. Undocumented riders operate outside legal employment frameworks and are entirely unprotected."

"Substitute riders, often working under exploitative arrangements, are excluded from any legal recognition or protection, including health and safety oversight. This population of 'invisible workers' poses a major regulatory blind spot. They are neither covered by employment law nor reached by road safety initiatives, and their growing presence in the delivery sector undermines enforcement."

What's more, none of the surveyed riders had undertaken structured road safety training and platforms' online courses, they found, 'are often superficial and lack meaningful follow-up or verification'. Language barriers and an unfamiliarity with UK traffic rules among a workforce with a substantial immigrant demographic, make a level of proficiency on the road more difficult to achieve.

Shaf Hussain, representing the IWGB, said: *"[delivery companies] might give a directive over email. Half of [riders] don't even read or have an email."*

Worryingly, a survey of Scottish riders highlighted an absence of help for those who report concerns about working conditions, with just 0.5% of riders receiving any response. "Many feared [account] deactivation for speaking out," researchers said. Serious concerns, including reports of abuse, were commonplace among riders surveyed.

According to the Fair Gig Work in Scotland? report riders are exposed to abuses on the roads:

- **81% of riders felt unsafe at work**
- **100% of female respondents reported sexual harassment**
- **90% experienced verbal abuse**
- **Over 60% reported racial or ethnic harassment**
- **55% had experienced physical abuse**

Riders are also at risk of 'gangmaster' relationships because they might be renting not only an account but housing and equipment from someone with a legitimate account - their only way to access funds with unsettled immigration status and no permission to work in the UK. This also limits their ability to choose the bike they use.

Callum Cant, written evidence:

"Now increasingly, we're seeing people who are vulnerable in a number of different ways, particularly around migration status, who are working because they have access through a subcontractor."

"Deliveroo has just been sold for £2.9 billion. That £2.9 billion valuation is based on that hyper exploitation. There's no if-but relationship; that is completely direct. So if we want to deal with this problem, we have to deal with the fact that people in the city, hundreds of thousands of people, are driving around, at very high speed, very high rates of exploitation, very high risk to themselves, high risk to others in order to make these platforms more profitable."

Our evidence strongly suggests delivery companies' efforts to ensure the safety of their riders are failing. This urgently needs to change, both in terms of communicating obligations in a way riders cannot ignore, but more than that the economics of the business model that permit lower than minimum wage pay, are tipping the risk:reward ratio in favour of riders taking unacceptable risk to both themselves, both on the roads and to wider society in the fires caused by substandard products.

The role of delivery platforms and the gig economy

Shaf Hussain, representing the IWGB:

"There are road legal bikes. Unfortunately, those bikes... it's all the distance factor. Is that going to last me for the entire day? You know, most bikes only do about 50 miles range, unfortunately. So I need something that can do at least 100-150 miles range just for the day. That's why you see a lot of bikes with like, three or four battery packs on them."

"Take accountability for what you've basically done with an industry. These are companies that, yes, legitimate and are giants, but they're effectively cowboys. They've made this industry the Wild Wild West, effectively"

London Cycling Campaign, written evidence:

"It is frequently reported that gig economy companies deny that their riders are employees, and therefore they do not give these riders traditional employee rights or protections and pay riders 'per drop.' We note that this practice has largely been eliminated from reputable London construction lorry driving firms precisely because it encourages reckless corner cutting behaviour in the pursuit of more drops, more pay."

There are warnings that a rise in the living wage, and the declining cost of gig work, thanks to an influx of potentially desperate workers, is incentivising the 'giggification' of other workforces.

Callum Cant, in-person evidence:

"If there isn't regulation on this front, if you have to pay a higher and higher wage for people to do work in the service sector, [companies will be] increasingly attracted to pushing people into gig work organization and arrangement. So I think if there's not a solution around the assumption of employment, this is going to be a widening problem, not just a problem that stays the size it is"

Dr Morgan Campbell, University of Leeds' Sustainability Research Institute, written evidence:

"Both the demographic and type of bike used by riders has noticeably changed since COVID. Feedback from riders who have worked for longer state that the apps (eg Uber Eats, Deliveroo) are designed to "onboard" as many riders as possible. This becomes classic economics; the greater the supply of rider, the less companies pay per delivery as there is always someone willing to work for less."

Additional Recommendations for Delivery Company Sector and the Gig Economy

Because the role of delivery companies is so significant in the proliferation of fake e-bikes, we have included these full recommendations to help Government and stakeholders tackle the issue. While our core recommendations highlight the need for clear enforcement, platform accountability, and better rider protection, these further proposals provide additional clarity on how that can be delivered in practice; through infrastructure, procurement, data use, and financial support models.

Additional and Expanded Recommendations

Public Reporting Systems: Platforms should introduce accessible, transparent mechanisms for the public to report unsafe or illegal rider behaviour, with clearly defined follow-up processes and published outcomes to restore public confidence. We heard in evidence that many complaints receive only generic customer service responses, with little evidence of local enforcement or meaningful action. This undermines public trust and fails to address the root causes of unsafe behaviour. Greater Manchester's report recommends escalating enforcement policies, similar to those used by e-bike and e-scooter hire companies.

Mandatory Training for All Riders: Training should be made compulsory and free for all delivery riders, based on National Standards Cycle Training (as used in the Driver CPC model), with potential shift prioritisation for those who complete it. This must also extend to cargo bike users, who should meet minimum safety training levels such as Bikeability Level 3.

Equipment Access Programmes: Delivery companies should further support lease-to-own and rental schemes for road-legal e-bikes, following models such as Zoomo, which also could enable active battery monitoring and fleet safety reporting.

Targeted E-Cycle Subsidy Schemes: Current government schemes (e.g. Cycle to Work) exclude self-employed or low-income gig workers. Launch an e-bike scrappage or swap scheme to get dangerous bikes and batteries off the streets; the cost must be covered by the delivery companies profiting from their use.

Police and Inspector Training: Cytech's technical training on identifying unsafe e-bikes and batteries should be rolled out to police and inspectors responsible for compliance in the gig economy.

Dedicated Infrastructure for Gig Riders: City authorities should prioritise protected cycling infrastructure in urban centres to safely accommodate the growing number of delivery riders, reducing the likelihood of conflict with pedestrians or motorised traffic.

New York's solution Battery amnesty and battery swap cabinets

A pilot in New York provided battery swap cabinets for delivery workers, using on-street cabinets that safely stored batteries, so riders could swap as they worked, without needing multiple cheap, overpowered batteries to last them an entire day. In six months there were 12,000 battery swaps. This cut dangerous at-home charging by more than a third, and there were no e-bike fires during the pilot. In addition, on-street charging helped cut the same.

In 2023 following a surge in fatal fires, New York City introduced mandatory safety standards requiring e-bikes, escooters and their batteries to meet national UL standards under three categories: UL 2849 (electrical systems), UL 2271 (batteries), or UL 2272 (personal e-mobility devices). Such standards will now be enforced nationwide. This legislation had an impact. By September 2024 there had been three deaths in the city from e-bike fires, and 84 injuries, compared with 14 deaths and 114 injuries in the same period in 2023.[1] In addition e-bike amnesty programmes, run by the city following a pilot by The E-mobility Project (TEMP) were available. The TEMP project, funded in part by delivery firms, with $50m from the City, was available to any rider who had earned a minimum amount of dollars in the past six months from delivery work.

A qualifying non-compliant bike could be traded in for a safe, UL-certified model, for a subsidised price. The availability of a bike similar to those popular among New York riders, with a large battery that complied with UL standards, helped encourage riders to perform the swap. While the city amnesty, along with the TEMP pilot, saw around 650 unsafe bikes handed in, this represented around 1% of an estimated 65,000 e-bike delivery bikes ridden in New York City. Scaling up the programme would have cost an estimated $50m, according | to TEMP.

At the same time, in 2024 New York City implemented a policy that required minimum pay for deliver riders. While loopholes still exist, the programme has arguably helped increase wages and decrease the pressure to use the cheapest products.

1 https://ulse.org/news/deaths-e-bike-fires-declining-new-york-city-after-ul-standards-written-law

Conclusion

Electric bikes have a vital role to play in the UK's transition to cleaner, healthier, and more inclusive forms of transport. They offer a practical alternative to car dependency, open up cycling to more people, and support low-carbon last-mile delivery in increasingly congested urban areas. But this potential is being undermined by a growing crisis of confidence—rooted in regulatory gaps, unsafe products, and exploitative business practices.

This inquiry has revealed a complex set of interlocking issues: the unchecked sale of illegal and poor-quality e-bike kits through online marketplaces; a rise in battery fires linked to unregulated imports; and a delivery model that places vulnerable workers in unsafe conditions while denying them basic protections. We have also seen how these problems are damaging public trust—leading to blanket bans on e-bikes, reputational harm to the cycling industry, and missed opportunities to scale up active travel.

The solutions are clear, and they are within reach. Responsible manufacturers, retailers, regulators, unions and campaigners have already begun the work of identifying best practice and offering constructive pathways forward. But we now need coordinated, national action to match the scale of the challenge. That means tighter product regulation, clearer legal definitions, stronger enforcement powers, and a fairer framework for gig economy riders.

It also means recognising that e-bike safety is not simply a technical or legal issue, it is a matter of equity, infrastructure, and political will. If we want to support more people to cycle, we must ensure they can do so safely. If we want delivery services to operate at scale in our towns and cities, we must make sure those workers are protected. And if we want e-bikes to be part of a sustainable transport future, we must act decisively to remove the unsafe minority that threaten that vision.

This report is not the final word on these challenges, but a call to urgent and collaborative action. The APPGCW looks forward to working with Government, industry and civil society to ensure that the recommendations outlined here are implemented. The safety of riders, the reputation of active travel, and the future of responsible e-bike use in the UK depend on it.

Appendices

The following witnesses gave evidence to our inquiry held on Tuesday 13th April in Room T, Portcullis House.

Organisation	Name	Job Title
Amazon	Spencer Powers	Public Policy Manager, Customer Trust and External Relations
	Thomas Bell	UK Country Lead, Customer Trust and External Relations
Association of British Insurers	Fraser Lyall	Policy Advisor
Bicycle Association	Peter Eland	Technical and Policy Director
	Phillip Darnton	Executive Chairman
City of London Police	Sergeant Stuart Ford	Cycling Team Lead
	PC David Parker	Cycle Team
Electrical Safety First	Wayne Mackay	Director for Policy and Public Affairs
	Steve Curtler	Product Safety Manager
IWGB (International Workers of Great Britain)	Shaf Hussain	IWGB Couriers & Logistics Chair
Leigh Day solicitors	Jill Paterson	Personal Injury Partner
Office for Product Safety & Standards (OPSS)	Sarah Smith	Deputy Chief Executive Officer
	Shayan Yaghoobi	Engineering Lead
	Ruth Croucher	Policy Lead
Transport for London	Lilli Matson	Chief Safety Health and Environment Officer
	Guy Widdowson	Senior Manager, Health & Environment
University of Essex	Callum Cant	Senior Lecturer in Management at Essex Business School
Warwick Manufacturing Group	Mark Urbanowski	Principle Engineer for Micromobility
Wheels for Wellbeing	Dr. Ben Foley	Campaigns and Policy Lead

This report was produced with funding from Simon Bragg and The Bikeability Trust.

About Simon Bragg
Simon is a keen cyclist and passionate in his support for cycling. He has been a longstanding member of both Cycling UK and London Cycling Campaign. Through his charitable fund The London Leg Up Fund, a fund to help young people in London get a “leg up” in life, he has supported as a sponsor both the DAS Richardsons and London Academy cycle teams. He is an investor in a number of cycling and mobility related businesses, including Cyclefit (world class bike fitters and owner of Landrace brand), Cycling Brands (which owns Prendas and Shutt VR), Swytch Technology (whose Swytch Kit helps turn bikes into safe e-bikes) and Tandem Group (which owns Dawes and Claud Butler brands).

About The Bikeability Trust
The Bikeability Trust aims to activate a nation of cyclists by ensuring everyone has the confidence to enjoy the life skill, independence and fun of cycling.

With thanks also to Laura Laker, the author of this report, and Honor Elliott, the photographer for this report.

Unregulated and Unsafe: The Threat of Illegal E-Bikes

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