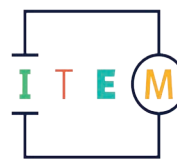


EVALUATING URBAN ELECTRIC MOBILITY POLICY MIXES IN BRISTOL



INCLUSIVE
TRANSITION TO
ELECTRIC
MOBILITY

TSU
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STUDIES UNIT



Summary

A policy mix is the sum of all the live policy measures implemented over the years by any level of government that relate to the governance of, in this case, urban electric mobility.

The policy mix for urban electric mobility in Bristol is skewed towards policies for private and commercial EVs, many set by the UK government, although local measures support the provision of shared and micro e-mobility.

Policymakers and stakeholders attended a workshop evaluating, reflecting on and discussing improvements to the policy mix for urban electric mobility in Bristol.

By evaluating the social justice implications and impacts of their policy mix, the workshop aimed to help policymakers identify how to make the mix more inclusive.

This brief offers both recommendations for Bristol, and also insights for other cities seeking to shape policy mixes that support more socially just transitions to electric mobility.



What are policy mixes and why do they matter?

A policy mix includes all the measures – infrastructure, financial, regulation, information provision, skills instruction – and their associated goals, that have often been developed incrementally over many years.

The measures of a policy mix can be found scattered across various types of policy documents and plans, produced by city, sub-regional, and national levels of government, and are the responsibility of diverse policymaking and operational teams. A policy mix provides a bigger picture than any individual strategy or action plan, yet excludes measures that have been cancelled or were never implemented in the first place.

Taking a policy mix approach to understanding and evaluating policy for something like urban electric mobility is useful because:

- the focus is only on live measures – not statements of intent – that influence or impact on the target population(s) and place(s);
- it recognises there is no blank slate – new measures are added to ones already in place and can have legacy effects;
- attention is given to all relevant policies – not just the ones that are more controversial or more popular; and
- it helps reveal where and when measures don't align with the city's vision for its future or lock in unintended or undesirable (side) effects – thus highlighting what needs to change to enable more inclusive transitions.



Presenting policymakers with live policy mixes – and evaluating them

The policy mix for urban electric mobility in Bristol is made up of all the live policy measures that have been implemented over the years that either directly target or strongly support the switch to various modes of electric mobility. Public transport was intentionally excluded, as its electrification does not affect how it is used. The policies for private vehicles include those supportive of not only personal use, but also business, taxi, and peer-to-peer or informal sharing – as an EV benefitting from some subsidy policies may be used for multiple purposes that are not specified by the policy measure.

A review of sixteen city, city-region and national policy documents cross-checked with policymakers, operators and organisational websites resulted in a list of 29 policy instruments relevant to the electrification of four modes of passenger mobility in the Bristol city-region, as shown in Figure 1.



Some policy instruments shown in Figure 1 do not directly target an electric mode (or modes), but are strongly supportive of electric mobility. For example, the Clean Air Zone is a measure that supports all modes of vehicle electrification. Mobility hubs and travel vouchers are inclusive of both electric and non-electric modes. Most of the policies had similar goals – reducing CO₂ emissions, encouraging EV uptake and improving air quality recurred most often.

Figure 2 shows that the private/commercial EV mix has the most direct measures of the four modes, and e-bikes the fewest – although the latter is partly because many measures are for bicycles, not specifically e-bikes. Figures 1 and 2 also show that

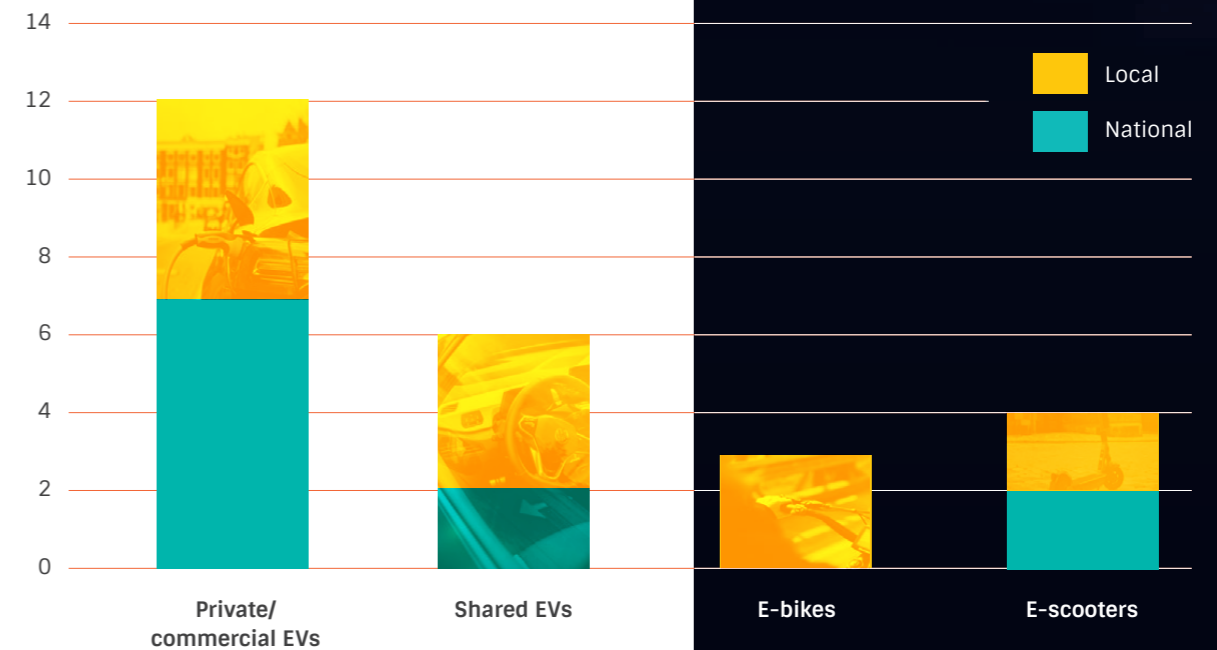
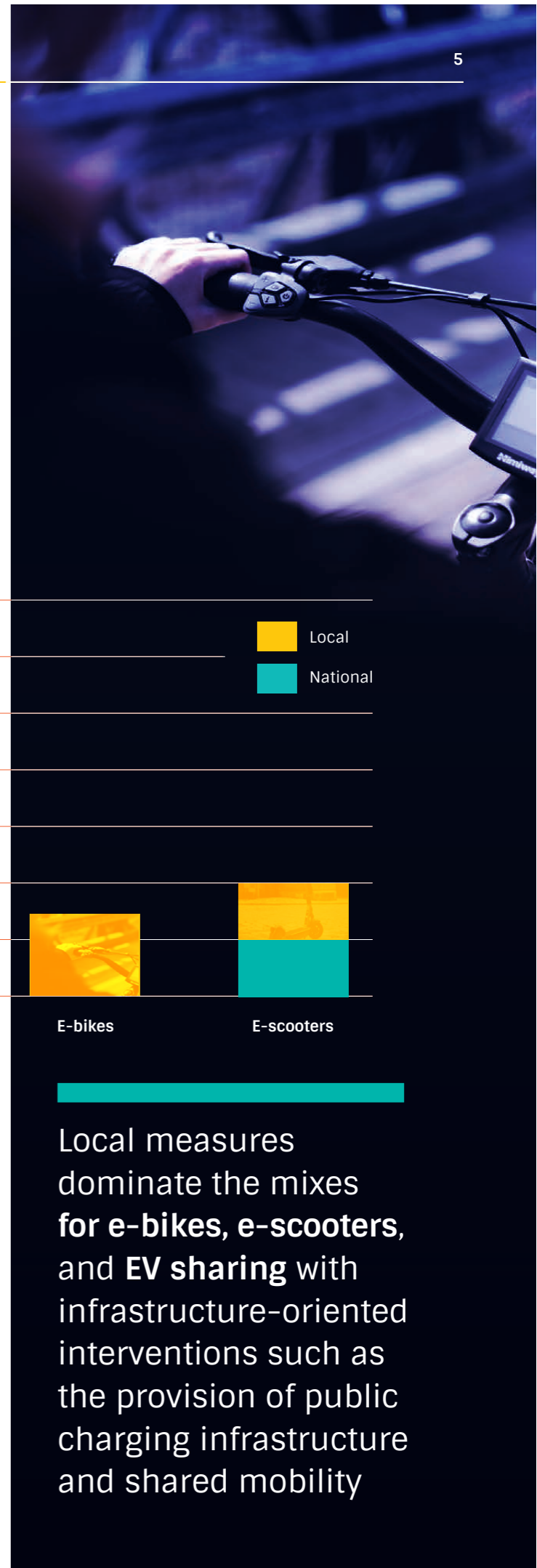


Figure 2: Directly supportive policy measures for four modes, showing level of governance.

many of the measures for private/commercial EVs are implemented by Central Government as financial interventions such as grants and tax incentives. Local measures dominate the mixes for e-bikes, e-scooters, and EV sharing with infrastructure-oriented interventions such as the provision of public charging infrastructure and shared mobility, although the latter are operated by private companies. Cross- or multi-modal infrastructure measures are also locally-led, such as the City's development of public realm improvements as part of a 'Liveable Neighbourhood' programme, or the sub-region's proposals for mobility hubs.



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The social justice implications of the policy mix were identified and divided into three categories representing efforts to: **a) distribute** a policy instrument's costs or benefits more equitably; **b) recognise** that the policy might create issues for particular groups; and **c) enable participation** in the design and delivery of the instrument. The distributional justice issues of EV affordability, the accessibility of public charging and air quality appear to be most important, whilst the specific needs of disabled and low-income people are most frequently recognised, and there are various formal consultation procedures and a dedication to business engagement.

The goals, characteristics, and social justice implications of each policy in each mix can be found in the tables available via the following [link](#).



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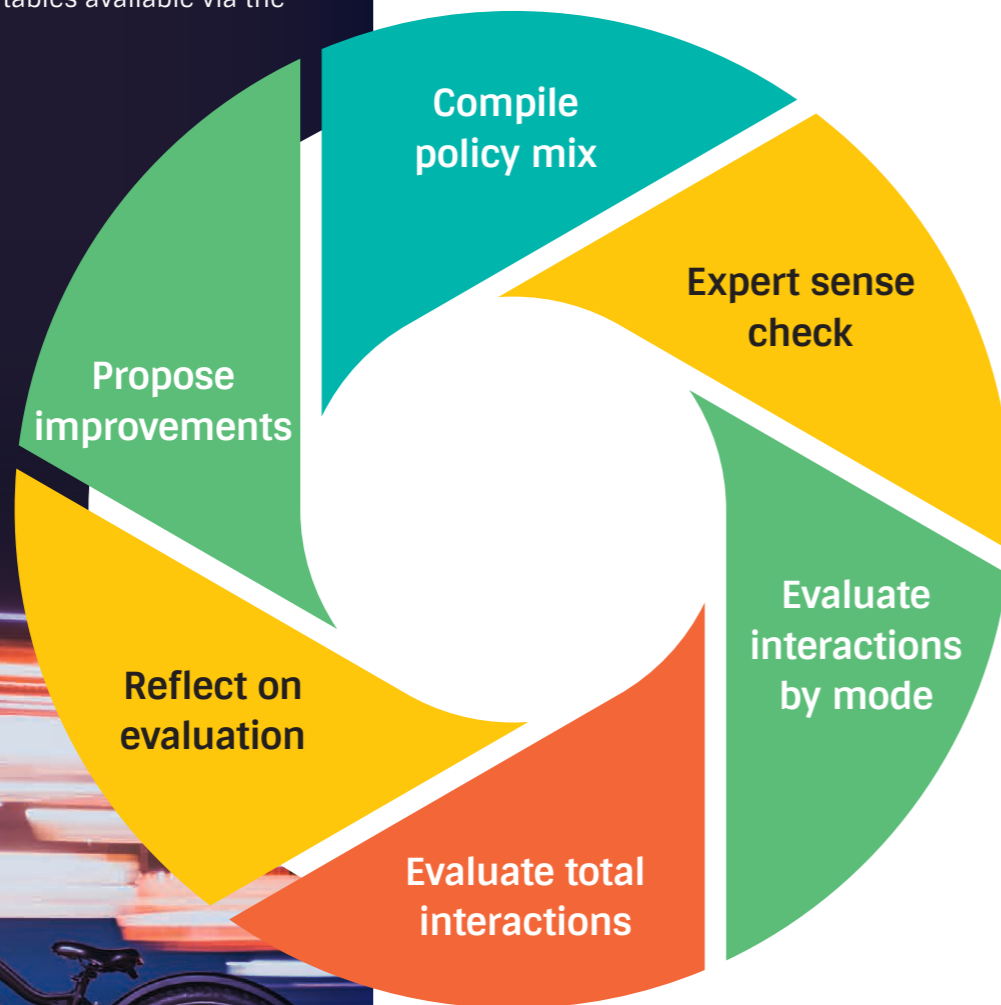


Figure 3: Process of policy mix evaluation and improvement.



The detailed tables were explained to a group of eleven policymakers and other stakeholders at a workshop in Bristol on 31 January 2024, who were guided through a process of evaluation and improvement, as shown in Figure 3. On a series of 7-point scales, each participant rated the modal and total policy mixes according to six criteria. Then, in discussion, they reflected on the scores and potential for improvement.

As shown in Table 1, the results of the evaluation exercise indicated that the policy measures for each mode and in total generally reinforce each other. Policy goals are mostly well aligned. The workshop participants were surprised by the scale and consistency of the policy mixes for electric mobility.

	Coherence of instruments	Consistency of goals	Alignment of goals & instruments	Distribution	Recognition	Participation & influence
EVs	5.1	5.1	4.8	3.4	2.8	3.5
Car sharing	4.7	4.5	4.1	2.5	2.8	3.2
E-bikes	5.5	5.0	5.0	3.7	3.9	4.3
E-scooters	4.7	5.2	4.5	3.8	3.9	3.9
Total	4.5	5.1	4.5	3.2	3.1	3.5

Table 1: Mean scores of policy mixes by transport mode across 11 workshop participants.

Conversely, the scores tend to be lower for the three justice criteria, especially related to procedural justice. Participants raised concerns that a tendency to use online consultation, exacerbated by the COVID-19 pandemic, has excluded significant segments of the population from participation. They also highlighted how distribution and recognition are constrained by the business models of private operators, particularly for car clubs, who target office or high-density locations over some of Bristol's most deprived areas. Thus, the biggest improvements can be made to the policy mix if the aim were to maximise justice.

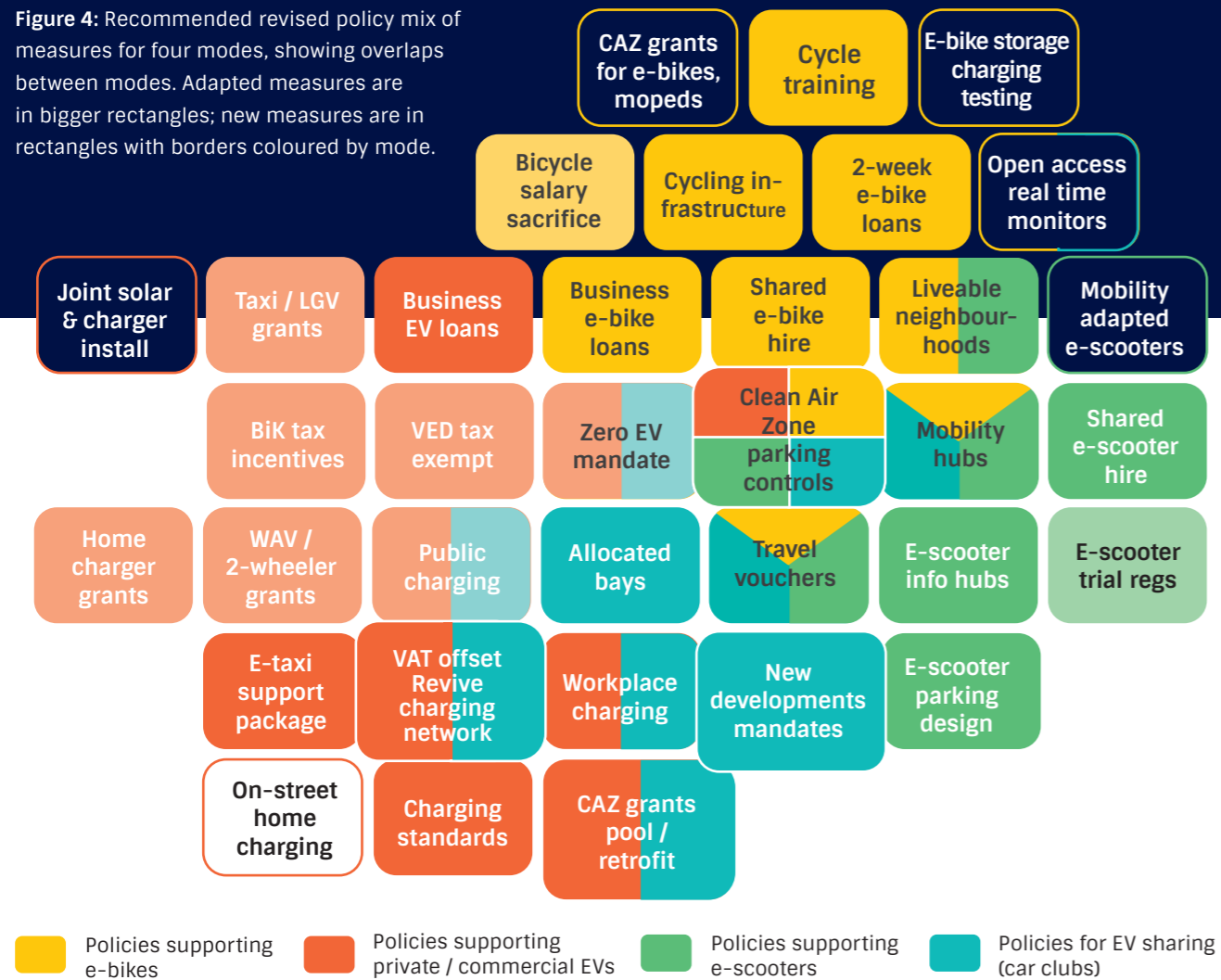
Recommendations for accelerating an inclusive transition to electric mobility in Bristol

Ideas for improving the policy mixes for urban electric mobility could be grouped into three categories:

- **Adapting existing policy measures;**
- **Adding new policy measures to reduce certain types of exclusion; and**
- **Altering policy processes to be more inclusive.**

Proposals to adapt and add policy measures are constrained by limited budgets and the remit of local authorities and stakeholders, but participants suggested that the revised policy mix shown in Figure 4 could be implemented by city and sub-regional authorities and address some inequities.

Figure 4: Recommended revised policy mix of measures for four modes, showing overlaps between modes. Adapted measures are in bigger rectangles; new measures are in rectangles with borders coloured by mode.



Note: national policies shown in lighter shade and darker text

The adapted and new measures aim to make the electric mobility mix more socially just in a number of ways as described in Table 2. In particular, greater justice can be achieved by not prioritising individual over

shared ownership, nor single-mode policies over those that can be flexibly applied to various modes of electric mobility – or even integrate transport and energy finance and infrastructure.

Distribution	Recognition	Participation & influence
Increase affordability of EV purchase.	Low-income residents. Those who use informal car sharing arrangements or modified vehicles.	Off-line support to self-organise grant pooling and set up community car (or other EV type) sharing.
Increase affordability of EV charging (and energy), including for car clubs / sharing.	Residents of rural areas, terraced housing, flats, rental properties, social housing.	Landlord, housing association engagement.
Increase accessibility of EV charging.	Low-income residents, those with informal car sharing. Streets with terraced housing, flats.	Priority to offline charging requests especially where CAZ grants awarded. Statutory processes.
Increase accessibility to car clubs.	Reduced parking provision in new developments.	Engagement with developers, setting up residents' associations.
Increase affordability of e-bike, e-cargo bike, moped, mobility scooter purchase and hire / rental.	Low-income residents. Gig workers. Disabled.	Create on- and off-line channels for grant applications to be made.
Increase accessibility and safety of e-bike, e-cargo bike, moped use.	Residents and workers in high density areas, gig workers.	Create on- and off-line channels for siting / mapping.
Accessibility of residents around edges of CAZ.	Safety of vulnerable road users, rights to space of residents near CAZ.	On- and off-line consultation; Traffic Regulation Orders.
Accessibility of data along major routes and where road / pavement space conflicts	Safety of vulnerable road users, residents and businesses along major routes, lack of awareness	Data openly available to see in real time, download and discuss. Inform public debate.

Table 2: Ways adapted and new measures are intended to improve justice scores for policy mix.

The discussion and reflection also came up with some cross-cutting recommendations to improve the inclusivity of future policy mixes and the policy process. These include:

- **the need for more off-line participation opportunities at multiple stages of policy development – such as when designing mobility hubs or allocating parking space, not just before any strategy is written or after the plans have been drawn;**
- **more open and transparent evidence of the impact of policy measures and trial periods – including real-time counters for micro-mobility or air quality monitors, so those moving through the city can come to their own conclusions;**
- **consideration of the interactions between ‘carrot’ and ‘stick’ policy measures for different places and groups within the affected populations – are CAZ grants and incentives appropriately targeted?**
- **ongoing reviews of the social justice implications of policy mixes as they evolve across multiple levels of government – recognising the iterative and layered nature of policy processes.**

Lessons for Other Policy Mixes in Other Cities

Compiling a policy mix may surprise even policy makers and experts in the field with the number and scale of relevant policies that have been introduced over time and how they fit together – or not!

A more inclusive electric mobility policy mix is one where policy measures and processes distribute funding more flexibly and creatively; match costs and benefits of different measures more equitably and transparently across social groups and neighbourhoods; and recognise the needs and varied use of more types or modes of electric mobility.

Residents and end users often have limited ability to influence the evolution of policy mixes, especially where measures are delivered by different actors at multiple levels of governance or in various sectors. Thinking more holistically about who can participate and how throughout the design, distribution, delivery, and data monitoring of policy measures can help.

About the Project

Inclusive Transition to Electric Mobility (ITEM) is an ESRC-funded (ES/W000539/1) trans-European urban research project which aims to ask questions about what an inclusive transition to electric mobility means. Research teams from the Adam Mickiewicz University and Heksagon in Poland, the Institute of Transport Economics in Norway, the Transport Studies Unit at the University of Oxford, and Utrecht University in the Netherlands review the transition to electric mobility using a multi-perspective and mixed methods approach. Using various concepts of social justice, the project compares four medium-sized cities across Europe at different stages of electric mobility adoption. This policy brief is part of the work package focused on how the different dimensions of justice are accounted for in the policies and decisions that govern the transition to electric mobility



About the Authors

Hannah Budnitz is a Research Associate in Urban Mobility at the TSU. Her research concentrates on the interactions between technology, and sustainability through social, behavioural and policy perspectives.

Tim Schwanen is Professor of Transport Geography and Director of the TSU. His research concentrates on questions of urban transport, wellbeing, inequality and just transitions towards low-carbon societies.



About the Transport Studies Unit

The Transport Studies Unit (TSU) has been the centre of transport research excellence within the University of Oxford since 1973. The TSU hopes to inspire and inform change towards a more sustainable, just and accessible transport system by advancing understandings of the systems, processes and practices that shape the way people and goods move. Based within the world-leading School of Geography and the Environment at the University of Oxford, the TSU approaches global transport challenges from social science and holistic perspectives. Its work is organized in four broad themes: energy, climate and environment; politics, power and governance; everyday life and justice; and health and wellbeing. **For further information see:** www.tsu.ox.ac.uk or contact enquiries@tsu.ox.ac.uk



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