

Appendix 4

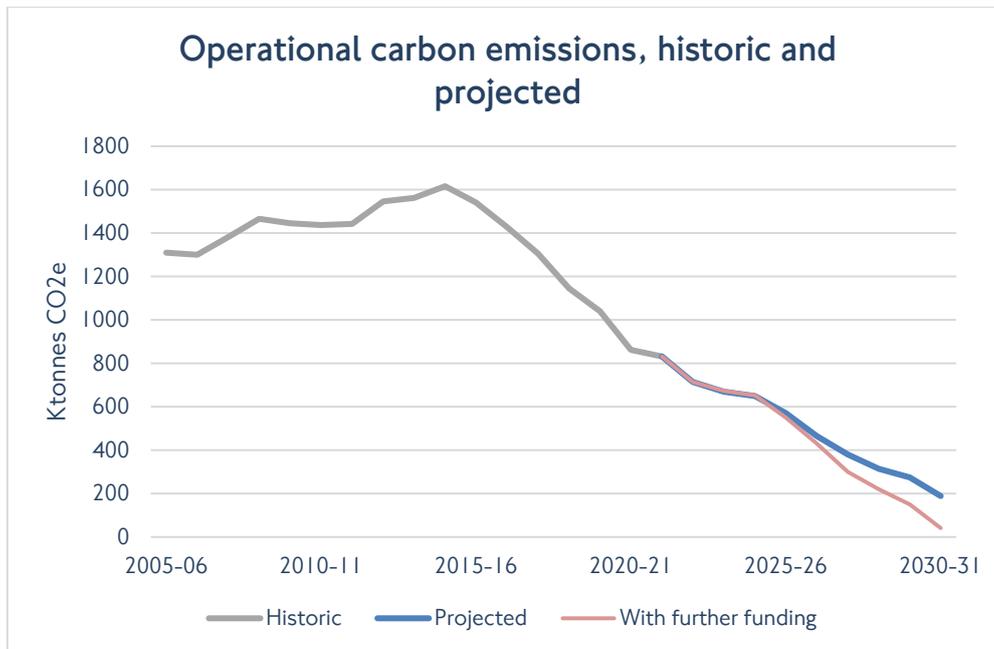
Climate Budgeting

Progress this year

- 7.1 TfL has set out its Vision & Values, which has as its central vision ensuring TfL is the “strong, green heartbeat for London”. Emissions of carbon per person for transport in London are much lower than in the rest of the UK, and have been decreasing in recent years, but we know we must go further and are setting ourselves up as an organisation to achieve this. Continuing progress on decarbonisation is set out in this Budget, and with more funding we could go even further.
- 7.2 Over the course of this year, we made a good start on our goal to adopt a Net Zero plan for our Head Offices and develop Decarbonisation Plans for all other buildings. We undertook a deep dive across our entire estate (about 2,400 sites) and developed a strategy to cut costs, carbon and energy and attracted £100k of government grant funding. Work is now underway to detail the next steps into delivery.
- 7.3 We completed the Major Projects Carbon Baseline – this is the first time the whole life carbon emissions for all ten current Major Projects have been modelled in detail and consistently over a 120-year assessment period, allowing programmes to identify their carbon hotspots. The carbon baseline contains approximately 2.3 million tonnes of CO₂ equivalent and Major Projects will be aiming to reduce their whole life carbon impacts in the coming years, by management of carbon through the design process and in collaboration with our supply chain. We are now working to expand the carbon baseline across our capital investment portfolio.
- 7.4 In recognition that everyone has their part to play on cutting carbon we launched TfL Carbon Literacy Training in the summer with the Carbon Literacy Project. Nearly 300 employees have already become Carbon Literate and 25 have become Carbon Literacy Trainers. At the start of 2023, we plan to run four courses a week and be on track to reach our target of 500 employees by end of the financial year.
- 7.5 In June we went to market with our first renewable Corporate Power Purchase Agreement covering approximately 10 per cent of our electricity demand. This year the energy market has been volatile and the response from the market was limited. We learned from the process and are revising the tender to widen eligibility with plans to relaunch it at a more stable time next year. At present our energy is 100% standard Grid mix however we are looking at sourcing approved “green” electricity.

Carbon Budget

- 7.6 The scope of this year's Climate Budget is TfL's operational emissions, where our target is to achieve net zero by 2030. This includes all energy and fuel that TfL purchases directly, along with the emissions associated with the operation of TfL-branded services. For example, this includes the emissions associated with the TfL bus network and London Overground, where TfL doesn't directly purchase the energy or fuel directly.



- 7.7 We have made and will continue to make significant progress in reducing our carbon emissions. Our funded plan is demonstrated in the projected emissions scenario above. With additional funding, we could go even further, closing almost all of the gap towards the ambition of net zero operations by 2030. We do not at present “offset” any carbon emissions arising from staff air travel. Further assessment would be required to close the remaining gap beyond the ‘with further funding’ scenario.

Funded initiatives (contributing to projected emissions scenario)

- 7.8 Around 98 per cent of TfL's operational emissions come from bus operations and the electricity we use for our rail operations (covering traction and non-traction, for example in our buildings). Therefore, our primary focus has been on tackling these two issues.
- 7.9 Bus operations make up over 50 per cent of TfL's operational emissions. The Mayor's Transport Strategy in 2018 set out an ambition for all TfL buses to be zero emission by 2037. In 2021, the Mayor confirmed that all new TfL buses will be zero emission and that the plan to deliver a 100 per cent zero-emission fleet would be brought forward by three years, to 2034. At the same time, he set out that, with further funding, it would be possible to accelerate further, to achieve a fully zero-emission bus fleet by our target of 2030.

- 7.10 The TfL business plan maintains the 2034 zero emission bus plan, but with confirmed investment in the next two years that allows us to keep the pathway open for an acceleration in roll-out of zero emission buses to our target 2030. Our approach will ensure we do not contract combustion engine buses into the fleet beyond 2030 over the next two years. However, to maintain the trajectory towards a 2030 target beyond 2024/25 will require significant additional funding (see section on additional funding).
- 7.11 We continue to make progress upon our plan for a cost-effective transition to zero carbon energy, of which a significant proportion (approx. 50 per cent) will be achieved through Power Purchase Agreements (PPA). TfL are using a phased introduction which will see various tranches take power at intervals up to 2030. Using this approach allows TfL to learn and adapt as the market evolves. TfL are also engaged in GLA Energy Procurement Collaboration which aims to pool the electricity demand of the GLA bodies to jointly procure PPAs. This could allow the entire Group to benefit from enhanced purchasing power whilst also bringing efficiencies in the procurement process.
- 7.12 These two key initiatives are complemented by the following range of additional initiatives.
- 7.13 Over the past year we have developed a better understanding of emissions from our buildings and have developed a strategy to minimise this impact. We are now creating a programme with dedicated funding to deliver upon this strategy, which will focus on energy efficiency upgrades and gas appliance removal that will payback within the period of the plan.
- 7.14 The Mayor's Transport Strategy (MTS) and London Environment Strategy (LES) outlines commitments for all GLA Group fleets to be zero emission by 2030. To support this, our Corporate Environment Plan sets out the following targets:
- All cars in TfL fleet must be zero emission by 2025;
 - All vans in TfL support fleet must be zero emission by 2030;
 - All heavy vehicles (greater than 3.5 tonnes) must be fossil fuel-free from 2030.

TfL operates approximately 1,000 fleet vehicles, with less than five per cent currently being Zero Emission Capable (ZEC). We have funding to convert all cars and vans in TfL to zero emission in line with our targets, with the leasing of new vehicles as well as the implementation of supporting infrastructure in the vehicle depots.

- 7.15 Solar Private Wire is a key project to enable TfL to directly receive zero-carbon electricity from new-build local solar assets, reducing the carbon emissions associated with the operation of the LU network. As well as the environmental benefits, there is the potential for financial savings based on the avoidance of costs associated with delivery of power via the grid, which typically make up circa 50 per cent of the energy bill.

Funded initiatives (not in scope)

- 7.16 Whilst not directly reducing TfL's operational carbon footprint, therefore not in-scope for this year's climate budget, TfL continues to invest in measures that incentivise active travel and reducing the usage of the most polluting vehicles in London, thereby reducing the carbon footprint of London as a whole.
- 7.17 In October 2021, we expanded the ULEZ from central London up to, but not including, the North and South Circular roads, making it the largest zone of its kind in Europe.
- 7.18 In January 2022, the Mayor published an independent report to develop pathways toward his target of London reaching net-zero carbon by 2030. As well as the urgent need to reduce carbon emissions and address climate change, the Mayor identified the need to reduce toxic air pollution and cut congestion.
- 7.19 To tackle these challenges, in November 2022 the Mayor announced that he will expand the ULEZ London-wide to tackle the triple threats of air pollution, the climate emergency and congestion, and to ensure five million more Londoners can breathe cleaner air. The expansion will come into effect on Tuesday 29 August 2023 and will operate across all London boroughs up to the existing Low Emission Zone boundary.
- 7.20 The ULEZ expansion will be accompanied by a brand new £110m scrappage scheme to support Londoners on lower incomes, disabled Londoners, charities and small businesses and sole traders. Successful scrappage applicants will receive a grant to scrap or - for the first time - retrofit their vehicle for certain vans and minibuses. Successful car owners can opt to receive a smaller grant accompanied by up to two free annual bus and tram passes, which would give them a higher financial package.
- 7.21 To maximise the potential benefits of expanding the ULEZ and strengthen alternatives to private cars, the Mayor also announced a plan for improving the bus network in outer London that will see over one million further kilometres added to the bus network. In east London, new zero-emission cross-river services will be introduced, subject to consultation.
- 7.22 We are also continuing to fund a project team to explore the delivery of waste heat opportunities that would provide CO₂ savings to London, by capturing and re-using thermal energy from London Underground ventilation shafts for use by external suppliers of local heat networks and buildings.

Uncertainty over funded initiatives

- 7.23 Although Government have provided a funding settlement to March 2024, there remains significant uncertainty on the level of funding that will be provided in 2023/24. A proportion of expected funding, linked to increased inflation, is subject to DfT review and approval. All Government funding in 2023/24 contributes to the funding of capital investment, therefore

failure to receive this funding would impact our ability to deliver our capital investment programme including carbon-related initiatives.

- 7.24 There is currently no certainty on Government funding for capital investment beyond March 2024. The TfL Business Plan makes an assumption on the level of funding that will be made available for rolling stock and signalling replacement. If this funding is not confirmed in future, this will impact the ability to fund all of TfL's capital investment including green initiatives.
- 7.25 Since the Government introduced the 'Energy Prices Act', which contained outline proposals to control energy prices – with potential implications for the wholesale price of electricity generated by renewable and low-carbon generators – there has been significant market uncertainty. This has meant we have to pause our proposed re-launch of our first PPA procurement. Ongoing market uncertainty or further changes to Government regulation, could impact the pace of progress with PPA roll outs.

With additional funding

- 7.26 With additional funding, we could deliver additional improvements that would close the gap between our forecast and net zero emissions by 2030. Some of these options are at a very early stage of development, with costs and benefits estimated only at a high level. Further funding certainty in future would allow us to develop some of these options for delivery through this decade.
- 7.27 With additional funding, we could lock-in the pathway to making the bus fleet zero-emission by our target 2030, which in combination with existing and funded initiatives would save an additional three hundred thousand tonnes of carbon. This would require circa £500-600m in additional funding, although this cost would be spread over the lifetime of the new vehicles which extends beyond 2030.
- 7.28 In addition to making all buses zero emission, further funding would allow us to make our Dial-a-Ride fleet zero emission. The Dial-a-Ride fleet was renewed with Euro VI vehicles in 2019/20 in order to be compliant with ULEZ. While this considerably improved their emissions footprint, moving to electric vehicles would remove tailpipe emissions completely. It would also improve air quality and reduce noise in residential areas where many customers live. Infrastructure would need to be installed at each Dial-a-Ride depot to facilitate charging. The current supplier market for suitable vehicles is restricted, leading to higher costs.
- 7.29 We have plans to make our support fleet of cars and vans zero emission. A more expensive intervention would be to make the 20 HGVs in the TfL support fleet zero emission, as options for such vehicles are much more limited. We have estimated costs only at a very high level, though as the market matures options may improve.

- 7.30 Energy usage and emissions from our rail modes could be reduced through further improving traction efficiency. This could include measures such as regenerative braking, energy storage and 'green CBTC' (where driving style is designed to minimise energy usage).
- 7.31 Our current funding will reduce the carbon emissions from our buildings by one third, by focusing on our most technically feasible sites. With additional funding we could eliminate all of our building emissions, however the remaining two thirds will be progressively more expensive as we take action on our more technically challenging sites. Through our new dedicated building decarbonisation programme, we are undertaking a pipeline of feasibility studies to produced detailed plans for our buildings, which will improve the accuracy of our estimated funding requirements over the coming years. Further work is required to understand the optimum level of energy efficiency measures for different buildings and sites.
- 7.32 Further investment in LEDs in our advertising infrastructure, street lighting and traffic signals would reduce another source of emissions, as well as supporting cost savings in operations.
- 7.33 Finally, further investment in solar power generation beyond the Private Wire project included in this Budget would allow more generation of renewable energy on our estate.