

The case against Silvertown Tunnel

Introduction

1. We believe the Silvertown Tunnel project is deeply flawed – in the broad, vital and urgent context of climate emergency, and the local context of traffic congestion and air pollution. The outdated business case did not properly examine pricing Blackwall Tunnel (either on its own or as part of a wider road pricing strategy) and the project does not give value for money.

Summary and proposals

2. We face a climate emergency and must stop building new road infrastructure. Any large-scale transport project must aim to reduce emissions. If/ when the UK government takes serious action on the climate emergency, they will have to enact a policy (likely, London-wide smart road charging) that will sharply reduce motor traffic in London, and remove any need for the tunnel (invalidating both the Silvertown business case and the repayment strategy).

- The Silvertown Tunnel Environmental Statement flat-lines London-wide transport emissions out to 2036. It does not attempt to align even with targets in the Mayor's London Environment Strategy (LES) which itself provides only modest reductions.
- The LES itself needs updating in light of climate emergency and the IPCC's call for global heating to be kept below 1.5°C: work from Manchester Tyndall suggest emissions need to be reduced at least 4 times faster than the LES (see annex).
- Electric vehicles aren't a solution in the time we have, for many reasons e.g. big rise in UK electricity demand, limited EV resources such as lithium, up-front carbon emissions from production.

3. Air quality: at best, Silvertown would move pollution around to already congested feeder roads, many of which are residential. At worst, we question TfL's forecast that traffic will increase in rush hours but not otherwise; many studies have shown that more roads = more traffic, and none have shown the opposite.

- It is not acceptable that residents, many of them poor, already suffering high or excessive pollution levels, should have to suffer even more.
- Local concern is widespread. 15 school heads signed a letter to the London Mayor asking him to stop the project.

4. The business case has not been updated to take account of climate emergency. There is a much easier, cheaper option. TfL has never modelled in detail the option of fully de-congesting Blackwall Tunnel with a toll (or more widespread pricing scheme), and has never done a cost-benefit comparison of this option - which is clearly a very credible alternative - with the Silvertown project.

5. There are many other options to improve transport in East & South-East London, including London-wide distance-based smart road pricing; and large scale investment in public transport, cycling and walking infrastructure, e.g. extending the DLR to Thamesmead.

6. We therefore propose that while the project be paused these three steps are carried out:

(a) First, the LES and the MTS need to be reviewed against delivering a Paris-aligned carbon budget that is consistent with your Climate Emergency declaration. Second, TfL policy needs to be reviewed, with and without Silvertown tunnel, against the revised carbon budgets in the LES and MTS. The bottom line must be that TfL policy does not undermine London staying within its share of the IPCC global carbon budget for limiting climate heating to 1.5 degrees centigrade above pre-industrial levels (ie: the Paris-aligned budget), as supported by the Mayor's recent climate emergency declaration.

(b) A review of the business case and traffic forecasts for the Silvertown Tunnel, to take account of the climate emergency and London's role in addressing it. Including an assessment of using price

mechanisms to de-congest Blackwall Tunnel without building Silvertown, and of a London-wide smart charging scheme.

(c) New air quality assessments that show clearly how air quality varies if future Mayors reduce or abolish the Silvertown and Blackwall tolls. Including effects of new land use e.g. the two planned freight depots.

Argument and background

A. Climate emergency

7. Carbon budgets. To stop the Earth over-heating more than 1.5°C, there is a fixed amount of CO₂ that we can emit globally. This is the global carbon budget and the IPCC calculate it at 420 GtCO₂eq. The current carbon budgets in the Mayor's London Environment Strategy (LES) will use up London's share around 2027. The carbon budgets in the LES, allowing for annual carbon reductions of 3.3%, have been made seriously out-of-date by the IPCC 1.5°C report, and the strategy needs urgent review given the Climate Emergency declaration. Much greater carbon cuts are needed in London, at least 12% a year. It is very concerning that the tunnel's Environmental Statement figures make no attempt to align even with the out-dated LES, let alone the IPCC, and essentially flat-line transport emissions out to 2036: this lack of action ("delaying") is extremely dangerous.

Please see Annex 1 for a detailed explanation of the carbon budget rationale and figures.

8. In this context, it is clear that the whole concept of the Silvertown Tunnel is outdated. Nevertheless, we are optimistic that the London Mayor will recognise the seriousness of the situation, and make appropriate changes to policy and carbon budgets very soon. The delay to the contract due to litigation allows a full analysis to be made of the consequences of deploying a genuine Paris-aligned carbon budget on the business case and repayment schedule for the Silvertown project.

9. Relying on technical solutions to carbon over-use are not going to help in the time we have left to act on Climate Emergency. **That time is now** to have a chance of deploying Paris-align carbon budgets that are effective in the decade to 2030 (see first graph in Annex).

- Electric cars have many downsides, including:
 - significant embodied carbon emissions in their production which front-loads an emissions cost just when we need to radically reduce emissions;
 - reliance on a predominantly carbon-based electricity grid – analysis shows currently EVs' in-use emissions are no better than 50% of internal combustion engine (ICE) vehicles;
 - significant demand to the grid which would slow the overall decarbonisation of the energy supply;
 - particulate air pollution from brakes and tyres;
 - 1:1 replacement of ICE vehicles do not reduce congestion;
 - a future EV market at the level of ICE vehicles today may be unachievable, due to limits of resources like lithium;
 - Amnesty International have raised very serious concerns about human rights abuses and child labour in lithium mining, in the poorest countries like the Congo;
 - research shows fleet turnover takes much longer than people think - 20 years with 100% market share; and uptake is slower than Government policy - current UK market share was 2.5% against 3.4% target for 2018.
- Negative emission technologies (NETs) propose global removal of carbon from the atmosphere. Generally, they have huge technical challenges and are unproven to scale.

- The one most studied so far, Bioenergy with Carbon Capture and Storage (BECCS) also has critical environmental risks including to water use, land required and biodiversity that argue against its roll-out at scale. The recent IPCC report on Land Use, published on August 8th, warned that if emissions are not cut by other means, reliance on BECCS risks serious pressure on land and land degradation.
- In any case, very significant technical, economic, financing and governance challenges make large scale deployment of NETs a long time off, and they cannot be seriously considered for carbon budgeting for London adopting a Paris-aligned budget and seriously implementing it in the next decade.

10. Therefore, any serious policy aimed at hitting IPCC 1.5 degree targets on carbon reduction will involve sharp and swift reductions in the number of motor vehicles (electric or ICE) operating on London's roads. Clearly the most efficient and effective way to achieve this is smart road pricing - which allows carbon reduction, local pollution and congestion objectives to be aligned with social justice goals. It gives an income stream that can help fund better public transport and easier and safer cycling and walking.

- Once TfL have solved the technical difficulties in implementing the wider ULEZ, they will have put in place an enforcement system that can easily be adapted to enforce smart road pricing. Instead of checking via a database that vehicles identified by the system have paid the ULEZ fee, the system can check that there is a mobile device inside the vehicle, running a GPS-based smart charging app registered to that vehicle.
- So assuming the wider ULEZ is on track for 2021, there are no significant technological barriers to replacing it with a smart charging scheme from the same date.
- There has been some resistance to ULEZ on social justice grounds. Smart charging would allow these effects to be mitigated.

B. Air pollution and traffic congestion

11. Even in the best case scenario, while this scheme moves pollution around it does not reduce it significantly, in a part of London where pollution already goes over the limits. In some places it makes pollution worse, which is not acceptable – all the more so given new and alarming knowledge about the health effects of bad air, especially on children's early development. It is the poorest in society who suffer most from bad air quality, in this case from a project apparently supported by property developers (Canary Wharf Group). Concern is growing among local populations especially in Greenwich and Newham near the tunnel mouths. TfL forecasts don't take into account the two new freight logistics centres being planned either side of the Tunnel; or cross-river visits to the new Greenwich IKEA.

Fifteen head teachers whose schools would be affected have signed a letter to the London Mayor. Reducing air pollution is rightly now a priority of his. We believe a road pricing scheme including toll income from the Blackwall Tunnel should be considered, instead of building a new tunnel. This would support new infrastructure that would sharply reduce air pollution across the entire area.

12. All the traffic, air pollution, and congestion forecasts for Silvertown are based on the toll level, which is entirely under control of future Mayors, who in a worst case scenario can remove it entirely. We think, therefore, that everyone affected by or promoting this scheme should be allowed to see the worst-case pollution scenario (which can be calculated from the worst-case no-charge traffic scenario on pages 57-63 of the traffic forecast) before the project goes ahead.

C. The business case and value for money

13. Transport for London (TfL) has never modelled in detail the very feasible option of fully de-congesting Blackwall either directly with a toll, or with a more widespread pricing scheme – and has

never done a cost-benefit comparison of this option, which is a very credible alternative, with the Silvertown project.

Had they done this, the cost/benefit figures we have seen indicate they would likely have found that 'just pricing to remove congestion' achieves nearly all the de-congestion and public transport benefits of the Silvertown scheme (about £958m worth of the overall £1216m) several years before the Silvertown scheme would – as well as some of the reliability benefits of Silvertown (removing queues improves reliability, and a pricing scheme can be used to exclude over-height vehicles).

14. This would not be surprising. The Silvertown scheme effectively doubles capacity at Blackwall, increasing theoretical cross-river road capacity here from 100,000 vehicles a day to 200,000 vehicles a day, at eye-watering expense. However, given that the approach roads are already saturated, when the scheme is operational, TfL will use the charge to cap daily vehicles at about 103,000 a day. Nearly all that new capacity they will build must remain unused - because if it is used, TfL's own figures show congestion around the tunnel gets worse. But a scheme to remove congestion at Blackwall with tolls without building Silvertown would likely use those tolls to cap traffic at about 97-99,000 vehicles a day - just marginally lower than the existing level. So, with tolling, there's very little difference in traffic outcomes with and without the tunnel - though peak tolls will be slightly higher in the no tunnel case.

15. If this is true, it is in fact very good news. If the modelling works out, TfL can get nearly all the suggested benefits of the Silvertown project (including congestion, pollution, public transport, and some reliability benefits) several years earlier, without spending £1bn on construction, or producing the associated 153,000 tonnes of carbon emissions. And they will get a new income stream, as soon as they implement the tolling, that can be used to re-start emission-reducing projects that have stalled through lack of money, as well as alleviating any social justice issues that pricing might bring.

A pricing-only scheme that fully decongests Blackwall would clearly represent much better value for money for the SE London residents who are being asked to pay for it than the tunnel. We believe TfL should do a comprehensive analysis of this option.

D. Proposals

16. We are asking for the following, before TfL sign the contract for this scheme:

(a) The recent Aether report reviewed Air Pollution exposure in London against the LES. Now two similar steps need to be taken on carbon emissions. First, the LES and the MTS need to be reviewed against delivering a Paris-aligned carbon budget that is consistent with your Climate Emergency declaration. Second, TfL policy needs to be reviewed, with and without Silvertown tunnel, against the revised carbon budgets in the LES and MTS. The bottom line must be that TfL policy does not undermine London staying within its share of the IPCC global carbon budget for limiting climate heating to 1.5 degrees centigrade above pre-industrial levels (ie: the Paris-aligned budget), as supported by your recent climate emergency declaration.

(b) TfL should be asked to review the business case and traffic forecasts for the Silvertown Tunnel, to take account of the climate emergency and the London-wide actions needed to achieve our carbon reduction goals. This should also include an assessment of the traffic, carbon, air pollution and economic effects of using price mechanisms to fully de-congest the Blackwall Tunnel without building Silvertown Tunnel, and of a London-wide smart charging scheme.

(c) TfL should be asked for new air quality assessments that show clearly how air quality varies if future Mayors reduce or abolish the Silvertown and Blackwall tolls, as they have authority to do - and that include the effects of new land use (e.g. the two new planned freight depots on each side of the tunnel).

Stop Silvertown Tunnel Coalition, August 2019
@silvertowntn

We are a cross party group of concerned residents, climate activists and clean air campaigners.

Contact:

[REDACTED]
[REDACTED]

Annex 1: Paris-aligned carbon budgeting for London

1. The Mayor's Environment Strategy Implementation Plan (IP, May 2018) lays out a carbon budget based on adopting a system of 5-year carbon budgets. This creates an emissions pathway with the objective to put London on track to achieving zero emissions by 2050. Page 19 of the IP shows the budgets for the next three 5-year periods (2018-2022, 2023-2027, 2028-2032) including sub-budgets for "Homes", "Workplaces" and "Transport", and an in-house budget for the "GLA group" itself. The London Zero Carbon Pathways tool provides more detailed budgets, and annual modelled emissions, through to 2050.
2. These budgets are based on national Committee for Climate Change (CCC) budgets, as legislated by the UK Government under the Climate Change Act (2008). The budgets in the IP precede the recent net-zero report from CCC and the Government adopting a net-zero target. Further, the level of these budgets is not aligned to the Paris Agreement: they are based on a global carbon budget of **1341 GtCO₂eq** original used by CCC in 2008 to derive 2°C temperature targets¹.

This global carbon budget may be considered to be like a bank account which must be kept in credit to meet a particular global temperature target. Going overdrawn increases the likelihood of overrunning the temperature target. The global carbon budget has now been superseded by a much tighter budget by the Paris agreement, and the IPCC 1.5°C report.

3. The Paris temperature goal is enshrined in Article 2 (1)(a)² which states:
Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

The latest IPCC report (1.5°C report) from last autumn resets the global carbon budget to the much smaller **420 GtCO₂eq** to meet this temperature goal (**note, this is budget is about one-third of the**

¹ For a discussion of the provenance of the CCC recommended carbon budgets, see: "Quantifying the implications of the Paris Agreement for Greater Manchester", Dr Jaise Kuriakose, Prof Kevin Anderson, Dr John Broderick & Dr Carly McLachlan, https://www.research.manchester.ac.uk/portal/files/83000155/Tyndall_Quantifying_Paris_for_Manchester_Report_FINAL_PUBLISHED_rev1.pdf, **page 18**: "It is our understanding that the CCC's advice has not been substantially changed since its original conception and, consequently, the UK government's existing carbon budgets are for an even higher chance of exceeding 2°C than was originally reported (i.e. greater than a 56% and 63% chance of exceeding 2°C)." onwards

² https://unfccc.int/sites/default/files/english_paris_agreement.pdf

previous one). At current global burn-rate, in which annual emissions continue to rise, this budget would be breached around 2030.

4. Scientists from Manchester Tyndall have established the SCATTER methodology to apportion Paris-aligned global carbon budgets to individual cities³. “Energy only” carbon budgets for Greater Manchester, Manchester city and Sheffield (and some other authorities) have been produced so far⁴.
5. A key question is what would a London “Paris-aligned” carbon budget look like? Whilst, a full application of the SCATTER methodology would be required by Manchester Tyndall scientists, some initial – very simple and only indicative – calculations below give an idea.

The table shows the SCATTER budgets for Greater Manchester, Manchester City and Sheffield for the rest of the century. Below that indicative estimates of a “Paris-aligned” London cumulative carbon budget is given, based on recent work of the SCATTER team shared with SSTC⁵.

	Paris-aligned cumulative carbon budgets (MtCO ₂ eq to 2100)	Start year	Recommended annual emission cut rate
Greater Manchester	71	2018	14.8%
Manchester City	15	2018	13.2%
Sheffield	16	2020	14%
Greater London (av)	204 (based on ‘grandfathering’)	2020	>12%

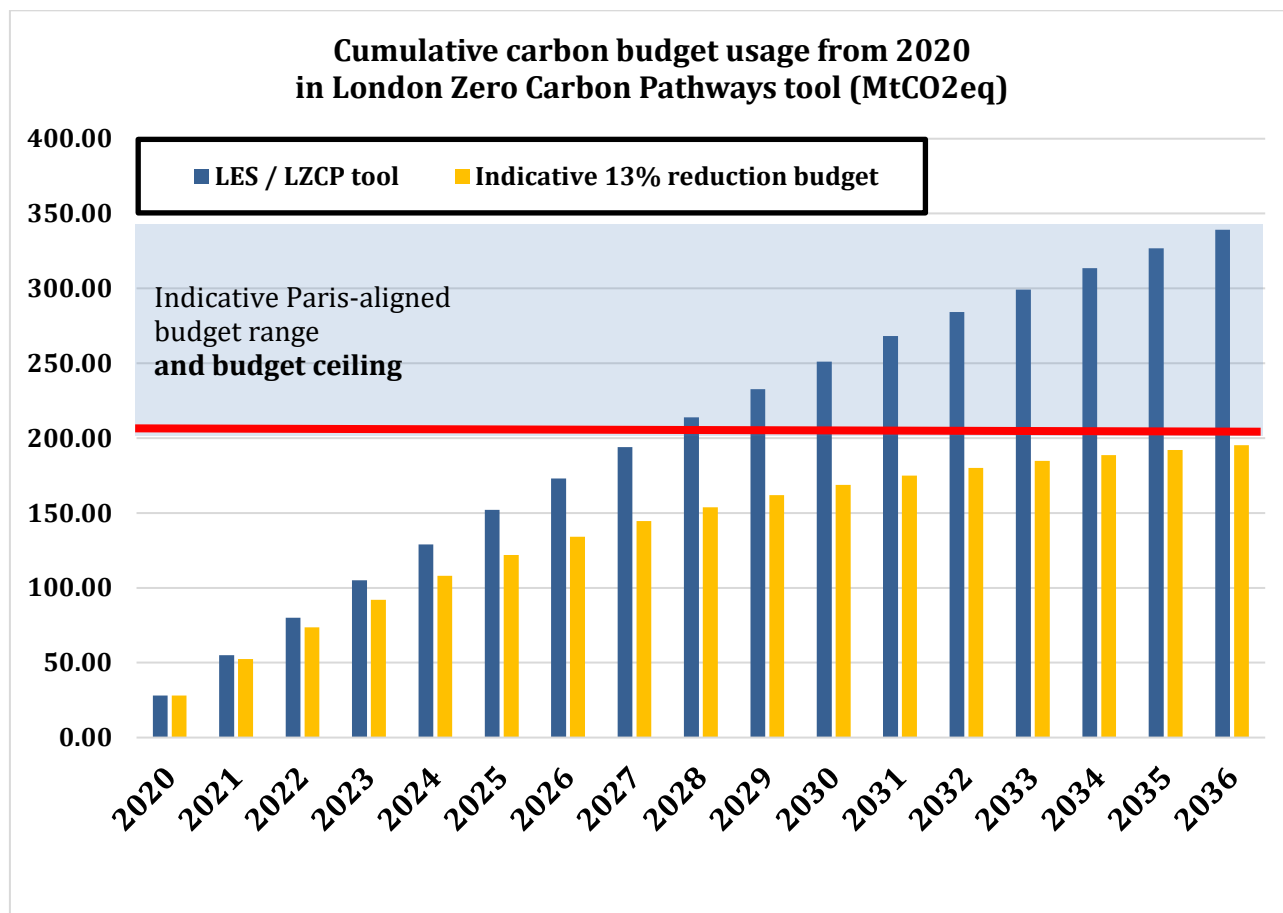
6. The next question is how does the London Zero Carbon Pathways tool compare with this? The graph below shows the usage of the cumulative carbon budget in the London Zero Carbon Pathways tool. It can be seen that the indicative Paris-aligned London budget is used up around 2027 ie in 8 years time. We have used a 13% annual reduction budget.

The LES / LZCP budget can be seen to go into the shaded area in 2027, exceeding the budget ceiling (going overdrawn in the bank account analogy) and contributing to breaking the Paris agreement globally, whilst the indicative 13% annual reduction target stays within budget until 2036.

³ The Setting City Area Targets and Trajectories for Emissions Reduction (**SCATTER**) project [4] commissioned by the Department for Business Energy and Industrial Strategy (BEIS) developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement. For a good description of the method, see “Setting Climate Commitments for the City of Sheffield Quantifying the implications of the United Nations Paris Agreement for Sheffield”, Dr Jaise Kuriakose, Dr Chris Jones, Prof Kevin Anderson, Dr John Broderick & Prof Carly McLachlan, June 2019, **page 6** in <http://democracy.sheffield.gov.uk/documents/s35567/Tyndall%20Centre%20-%20Sheffield%20Report%20-%20Draft.pdf>

⁴ For an up-to-date overview, see presentation to Sheffield City Council on July 3rd 2019, “From Paris to Sheffield Setting Carbon Budgets through integrity and action”, Jaise Kuriakose, Chris Jones, Kevin Anderson, Carly McLachlan and John Broderick at: <http://democracy.sheffield.gov.uk/documents/s35621/Tyndall%20Centre%20Presentation%20to%20Council%20030719.pdf>. A webcast of the presentation by Dr Jaise Kuriakose may be seen at: https://sheffield.public-i.tv/site/mg_bounce.php?mg_a_id=19516&mg_m_id=7010

⁵ Personal communication via email from Dr Jaise Kuriakose to Dr Andrew Boswell, 8th August 2019



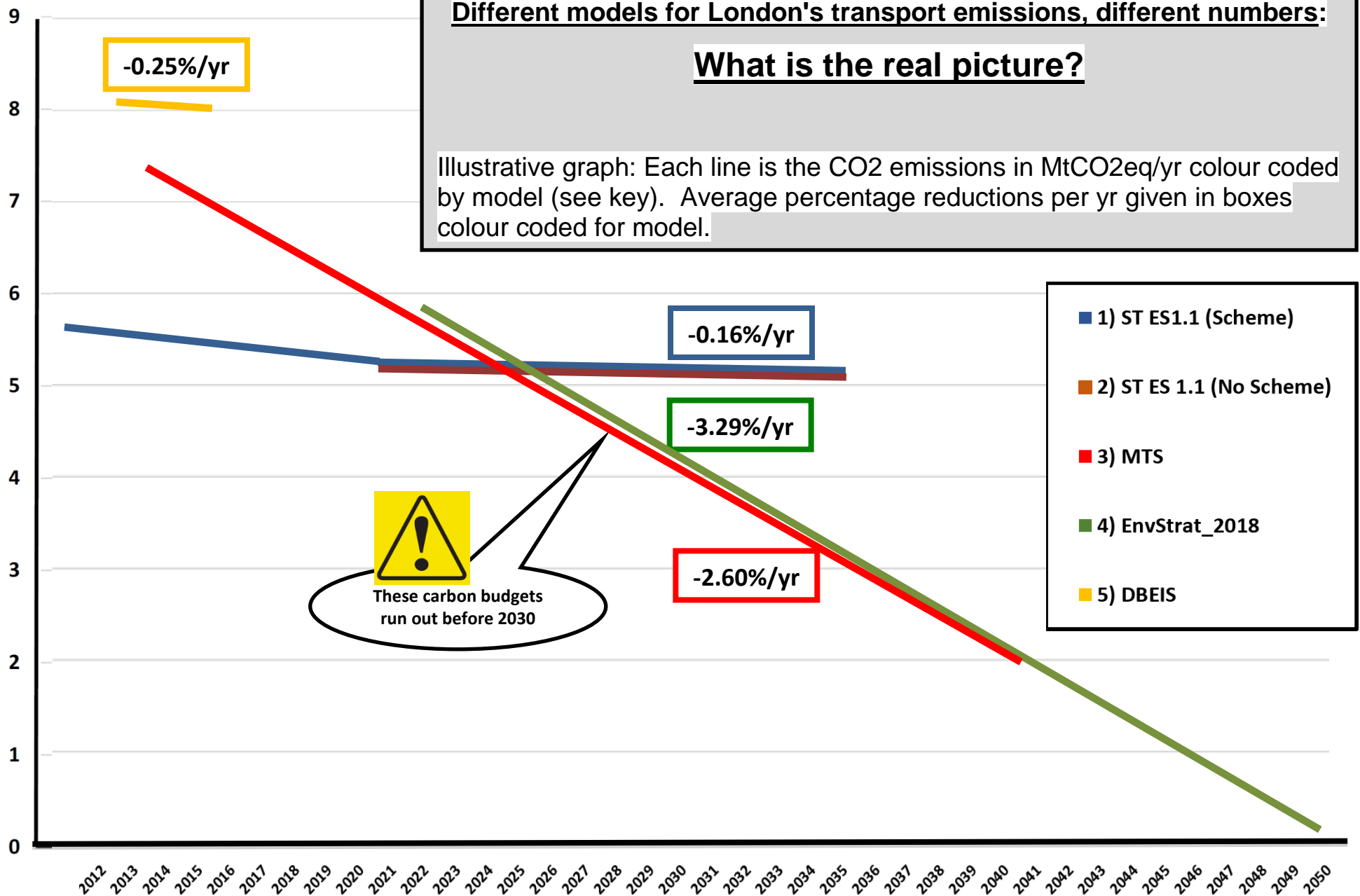
Annex 2: Inconsistencies between LES/MTS and the ST Environmental Statement

7. The carbon trajectories in the LES and MTS show modest carbon reductions for transport: -2.60% per year for the MTS and -3.29% per year for transport in the LES. The previous graph shows that these strategies are inadequate by around a factor of 4 to meet a Paris-aligned carbon budget.
8. However, the Silvertown Tunnel Environment Statement shows figures that are totally at odds even with these figures. This is shown on the graph below.

Different models for London's transport emissions, different numbers:

What is the real picture?

Illustrative graph: Each line is the CO2 emissions in MtCO2eq/yr colour coded by model (see key). Average percentage reductions per yr given in boxes colour coded for model.



Key points:

- (A) Silvertown Tunnel Environmental Statement modelling: GLA Road transport emissions plateau (-0.16%/year between 2021 and 2036). NB: Whilst DEFRA Emission Factor Toolkit modelling which projects distribution of vehicle types is only to 2030, there are numerous problems with Electric Vehicles, as noted elsewhere, and there is no guarantee of 2031-2036 emissions reducing after 2030.
- (B) Having the Silvertown Tunnel scheme, or not, makes virtually no difference to transport emissions reductions (see 2036 blue and brown lines – the 23KtCO₂ modelled difference is lost “in the noise” on the graph).
- (C) Meeting even the Mayor’s Transport Strategy, and London Environment Strategy, is doomed to failure if Silvertown Tunnel goes ahead. **Instead an entirely different transport system with deep modal shift from cars & roads needs to be designed and rapidly implemented.**
- (D) DBEIS data shows a -0.25%/year carbon reduction between 2013 and 2017, indicating that current annual emission reductions need to be increased **between 10 and 13 times** to align with Mayor’s Transport Strategy and London Environment Strategy.
- (E) Data from Tyndall Manchester gives an indicative remaining carbon budget for Greater London of 204 MtCO₂. **On this basis, burning carbon using the figures in the Environment Strategy would use the remaining GL budget by 2027.** Meeting the Paris agreement requires a much more stringent 1.5oC budget as calculated by Manchester Tyndall – globally the 420GtCO₂ budget from 2018 will be burnt by 2030 on current emission levels.
- (F) The Mayor’s Transport Strategy and London Environment Strategy are not sufficiently robust to align with IPCC 1.5°C as the Greater London carbon budget will be breached around 2027, on their trajectories. Under the Mayor’s Climate Emergency they need urgent review and reworking.

Notes:

1. Silvertown Tunnel data (blue & brown) is from Silvertown Tunnel Environmental Statement v1.1, Table 6.25 and only contains road transport.
2. London Environment Strategy (green), “Road transport” data line from “Main graph results” tab in https://airdrive-secure.s3-eu-west-1.amazonaws.com/london/dataset/london-s-zero-carbon-pathways-tool/2018-12-11T16%3A07%3A02/181211%20Zero%20Carbon%20Model_web.xlsm
3. MTS (red) data also contains rail and river emissions, and is from Figure 17 of the Mayor’s Transport Strategy.
4. DBEIS data (orange) is for “transport total”, and may be based on different assumptions. However, MTS trajectory since 2013 has not be reflected “on the ground” by DBEIS data which shows minimal reduction in the period. DBEIS data from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/812142/2005-17_UK_local_and_regional_CO2_emissions_tables.xlsx
5. Tyndall Manchester work: Personal communication via email from Jaise Kuriakose to Dr Andrew Boswell, 8th August 2019
6. Graph is illustrative only. Time scale is approximate.