

On behalf of the Claimant  
J Anable  
First Witness Statement  
Date: 26 October 2020; redacted 16 March 2021

**CO/2003/2020**

**IN THE HIGH COURT OF JUSTICE**  
**QUEEN'S BENCH DIVISION**  
**PLANNING COURT**  
**BETWEEN:**

**R (on the application of)**  
**TRANSPORT ACTION NETWORK LIMITED**

**Claimant**

**-and-**

**THE SECRETARY OF STATE FOR TRANSPORT**

**Defendant**

**-and-**

**HIGHWAYS ENGLAND COMPANY LTD**

**Interested Party**

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**FIRST WITNESS STATEMENT OF PROFESSOR JILLIAN ANABLE**

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I, Professor Jillian Anable, BA (Geography), MSc (Urban Planning), PhD (Environmental Studies) [REDACTED] WILL SAY AS FOLLOWS:

**Introduction**

- 1 I am Professor of Transport and Energy at the Institute for Transport Studies, University of Leeds, leading a large portfolio of projects on mobility, energy and climate change policy. I am co-director of the UK Energy Research Centre and co-director of the Centre for Research on Energy Demand Solutions, both acting as a focal point for the UK's research on the transition of the energy system to a net-zero carbon future. I am Steering Group Member of the UK Government's Electric Vehicle and Energy Taskforce, Expert Advisor to the Northern Ireland Panel on the Future of Energy and Member of the Review Board for the National Transport Strategy for Scotland. Previous key advisory roles have included Scientific Advisor to UK Research and Innovation's Energy Scientific Advisory Committee (2008 – 2015) and Strategic Advisor on Climate Change to the Commission for Integrated Transport (2006-2007), as well as advice commissioned to local authorities, grant giving bodies, government select committees and international agencies. I was a founding Associate Editor of the journal Energy Efficiency, and currently sit on several editorial boards of high ranking journals in the field of transport and energy.
- 2 My research focuses on the transition pathways to a decarbonised passenger transport system. I have particular expertise in mobility patterns, consumer

uptake of new technology and the design of policy to influence these trends. I have authored or co-authored over 100 articles, reports and book chapters, including several reports for the Department for Transport and the Committee on Climate Change.

- 3 In so far as the facts in this statement are within my knowledge, they are true. In so far as the facts in this statement are not within my direct knowledge, they are true to the best of my knowledge and belief.
- 4 I have prepared this statement in conjunction with Dr Lynn Sloman and Lisa Hopkinson from the organisation Transport for Quality of Life, of which I am an Associate.
- 5 I exhibit the documents referenced to in the footnotes of this statement in Exhibit JA1, the bundle of supporting documents, at the corresponding document number and at page references given. References in Exhibit JA1 are given as [JA1/document number/page reference]. Documents not in Exhibit JA1 can be found in other bundles or witness statements as referenced.

#### The importance of near-term action for achieving Paris aims, and domestic implications

- 6 The IPCC special report<sup>1</sup> in 2018 makes clear that it is not just the **net zero end date** of 2050, but also the **carbon reduction pathway towards that end date** that will determine whether the aim of the Paris Agreement regarding temperature can be met. This is because, once emitted, CO<sub>2</sub> remains in the atmosphere for many decades. **It is the cumulative amount of carbon emitted between now and 2050 that matters.**

#### Will policies for electric vehicles achieve the necessary carbon reduction from traffic using the SRN?

- 7 The scale of the challenge faced by the transport sector is all the larger because there has been no significant drop in transport carbon emissions over the last 30 years. It will be extremely difficult to achieve large reductions in emissions (consistent with the CCC cost effective pathway, the CCC carbon budgets and hence the Paris Agreement) *without* substantially reducing emissions from traffic on the SRN. This is because the SRN is responsible for 39% of all road transport CO<sub>2</sub> emissions in England<sup>2</sup>, despite representing only 2% of England's road network<sup>3</sup>. Carbon emissions from the SRN must therefore be a key focus of policy in order to meet the CCC carbon budgets.
- 8 The DfT's position is that the phase-out of petrol and diesel vehicles in favour of electric vehicles will achieve the necessary carbon reduction from traffic (on the SRN and elsewhere).

- 9 It may be the case that by 2050, the majority of vehicles on the road may be near-enough zero emission at the tail-pipe. However, such heavy reliance on the shift to electric vehicles is extremely problematic for the period covered by the fourth and fifth carbon budgets (2023-27 and 2028-32 respectively), and probably also for subsequent carbon budget periods (especially if carbon budgets are exceeded in the fourth and fifth periods). The main reason for this is that even if the phase-out date for sale of *new* petrol and diesel cars and vans is brought forward by the Government from the current date of 2040 to 2035 (as is currently being considered), more than half of all energy used by passenger cars will still be provided by fossil fuels in to the 2040s<sup>4</sup>. This is because the average car is used for 14 years before being scrapped<sup>5</sup>.

What might be the full impact of RIS2 on carbon emissions from the SRN?

- 10 A road scheme increases carbon emissions in several ways (with the witness statement of Professor Phil Goodwin also talking about synergetic impacts):
- 10.a There is significant embodied carbon in the steel, concrete, asphalt and other raw materials used to build it;
  - 10.b If there is extensive land clearance and many mature trees are felled, a carbon 'sink' (i.e. plants that can absorb and lock in CO<sub>2</sub>) is lost;
  - 10.c Once the road is opened, it may result in higher speeds, and this may lead to more carbon emissions: an increase in average speeds from 60mph to 70mph causes carbon emissions to go up by about 13% per vehicle;
  - 10.d Over time, increased road capacity generates more traffic, as it opens up destinations and enables development of car-dependent housing estates, retail parks and business parks. This is known as 'induced' traffic.
- 11 The impact of construction [(a) and (b) above] is 'one-off' rather than ongoing, but it can nevertheless be significant. For example, the combined construction emissions from 10 RIS2 schemes for which Environmental Assessments have so far been published are 1.3MtCO<sub>2</sub>.
- 12 The Department for Transport makes the case that RIS2 will have an insignificant impact on carbon emissions from the SRN. It informed Parliament in July 2020 that the cumulative emissions from RIS2 between now and 2032 would be 0.27 MtCO<sub>2</sub><sup>6</sup>, and has also stated that the cumulative emissions from RIS2 in the fifth carbon budget period (2028-2032) will be 0.28 MtCO<sub>2</sub> **[DB1/193]** (with the difference between these two figures arising because the Department assumes there will be small carbon savings from the schemes in question in the fourth carbon budget period).
- 13 However, both these figures are just for 5 'new' schemes that were ultimately included in the RIS2 Investment Plan approved by Ministers. They do not

include emissions from the other 45 schemes for which construction is expected to start before 2025, funded by RIS2.

- 14 The five new schemes will not open to traffic until between 2026 and 2028, and hence most of their impact will be in the period after 2032. Highways England (HE) figures in Appraisal Summary Tables (ASTs) for four of these schemes show that their cumulative emissions over 60 years (the full period for which their impact has been appraised) are forecast to be very much larger than suggested by the figures in paragraph 33 above, at more than 10MtCO<sub>2</sub>.
- 15 It also appears (from the statement by Phillip Andrews for the Defendant **[PA/78]**) that the figure of 0.27 / 0.28MtCO<sub>2</sub> did not include emissions arising from construction.
- 16 We are not aware of any calculation by the Department for Transport of a cumulative figure for carbon emissions from the start of Road Period 2 through to 2050, arising from all the road schemes funded by the RIS2 Statement of Funds Available, and covering construction emissions as well as ongoing increases in emissions due to higher vehicle speeds and induced traffic. This is the relevant figure in order to understand the impact of RIS2.
- 17 However, some estimate of this figure may be made in two ways:
  - 17.a First, HE predicts the carbon impacts of proposed road schemes in scheme Environmental Assessments. Predicted carbon impacts over 60 years following completion (the assumed 'design life' of a road scheme) are reported in an AST for each scheme. Some ASTs for RIS2 schemes have been published under Freedom of Information requests. Compiling the data from all published ASTs, cumulative user emissions for 40 RIS2 schemes (out of 50 listed in all, and including 4 of the 5 'new' schemes), for their 60-year design lives, are 26MtCO<sub>2</sub>. This figure does not include emissions from 10 schemes for which no AST has yet been prepared, or where the figure was missing, nor assessments of interventions not listed in RIS2, suggesting 26MtCO<sub>2</sub> is a minimum estimate. Against this, the Department for Transport has said that CO<sub>2</sub> estimates in ASTs are over-stated, because they do not take full account of growing uptake of EVs in the latter part of the period appraised, suggesting that the true figure might be somewhat lower.
  - 17.b Second, emissions from the RIS2 schemes can be estimated by comparison with actual outcomes of previous road schemes. HE undertakes post-opening project evaluations (POPEs) of all road schemes, and these include figures for total carbon emissions and the change in emissions in the 'scheme opening year'. These can be factored downwards to make allowance for the fact that changes in emissions from a scheme that opens in 2025 will be smaller than from an identical scheme in the past, due to improvements in average vehicle efficiency. Assuming that the types of road scheme that will be built as part of RIS2 are similar to those built in the past, the recent estimate by Transport for Quality of Life was that cumulative emissions

from RIS2 over the period to the end of 2032 (i.e. 13 years, up to the end of carbon budget period 5) could be around 20MtCO<sub>2</sub><sup>7</sup>. This estimate included emissions from construction, higher speeds and induced traffic. It assumed that schemes would be completed in the year in which expenditure was incurred; this may lead to an over-estimate of the impact within carbon budget period 5, but on the other hand emissions after 2032 are not counted. Over the full period to 2050, total emissions estimated by this method would therefore be larger than 20MtCO<sub>2</sub>.

- 18 To give an indication of the significance of these estimates, total cumulative emissions from all traffic on the SRN between 2020 and 2050 are forecast to be around 655MtCO<sub>2</sub> (using Road Traffic Forecast Scenario 7 **[PG/15/175]**). The estimate that RIS2 schemes will add 26MtCO<sub>2</sub> over 60 years, obtained from summing up predicted carbon impacts from ASTs, therefore represents an increase in emissions from the SRN of about 4% between now and 2050 (on the presumption that most emissions will take place in the next 30 years and emissions after 2050 must be zero). The Transport for Quality of Life estimate that RIS2 schemes could add 20MtCO<sub>2</sub> over 13 years (2020-2032) represents an increase in emissions from the SRN of about 5% during that time period (i.e. by comparison with cumulative emissions from 2020-2032 for all SRN traffic of 381 MtCO<sub>2</sub>, again using Road Traffic Forecast Scenario 7).
- 19 While 4-5% may seem modest, it is problematic in the context of the gap between actual surface transport emissions and the CCC cost-effective pathway. If compared to the (considerably lower) figure for emissions from the SRN that would be consistent with the CCC cost-effective pathway to net zero, the percentage would be considerably higher.
- 20 The statement by Phillip Andrews for the Defendant **[PA/56-57]** suggests that the relevant comparator against which increased emissions from RIS2 should be judged is 66MtCO<sub>2</sub>, which is the expected emissions savings from electric vehicles in a single year (2050) compared to the counterfactual of what emissions would be in 2050 if petrol and diesel cars and vans were still permitted at that point. This is both confusing and misses the point. It takes no account of all the emissions before 2050, which, as argued above, are significant. And what surely will matter to policy makers in 2050 is not the emissions that have been saved by the shift to electric vehicles, but the remaining emissions (around 11MtCO<sub>2</sub>, according to Road Traffic Forecast Scenario 7) from traffic on the SRN in that year that will mean that the SRN is still not compliant with the legally binding net zero target.

## Conclusions

- 21 The following conclusion can be drawn from the points presented above:
  - 21.a The Defendant's conclusion that RIS2 will have an insignificant impact on carbon emissions from the SRN is based on emissions from only 5 schemes, over a short time period, and excludes construction emissions. Two different estimates, drawing on HE data in Appraisal

Summary Tables and in Post-Opening Project Evaluations, suggest that the whole of RIS2 could add 20-26MtCO<sub>2</sub>, an increase in emissions from the SRN of about 4-5%.

### Statement of Truth

22 I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed

Jillian Anable

Dated: 26 October 2020; redacted 16 March 2021

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<sup>1</sup> Intergovernmental Panel on Climate Change (2018) [Special Report: global warming of 1.5°C: summary for policymakers](#) [SB/167-179]

<sup>2</sup> Department for Transport (2018) [Road Traffic Forecasts](#) Figures for England, 2015. See exhibit to witness statement by Phil Goodwin [PG/15]

<sup>3</sup> Statement by Phillip Andrews for the Defendant [PA/12]

<sup>4</sup> Brand, C., Anable, J., Watson, J. and Ketsopoulou, I. (2020) [Road to Zero or Road to Nowhere? Disrupting transport and energy in a zero carbon world](#). Energy Policy. 139, Article 111334

<sup>5</sup> Society of Motor Manufacturers and Traders (2020) [Average vehicle age](#) web page from SMMT 2020 Automotive Sustainability Report

<sup>6</sup> Response from Rachel McClean to [Parliamentary Question](#) from Caroline Lucas on 20 July 2020 [PG/12]

<sup>7</sup> Sloman L and Hopkinson L (2020) [The carbon impact of the national roads programme](#) [PG/1]