Response to Deadline 8 Submission on Climate Change

A303 Stonehenge Examination TR010025

Barry Garwood

Response to Highways England **REP8 – 013 section 9.1** Comments on my **REP7 – 053** Comments on the Applicants response to Written Question **WQ – CC 2.2**.

Highways England Said:

In response to the matter raised by Mr Garwood with regard to Written Question CC.2.2, the carbon assessment in Chapter 14 of the Environmental Statement (ES) [APP-052] presents the impact of the Scheme against the UK meeting its legally binding carbon reduction targets. At the time the carbon assessment presented in Chapter 14 was undertaken, the UK's carbon reduction target was an 80% reduction of carbon emissions by 2050 compared to 1990 levels. To meet this 2050 target, a series of legally binding five-year carbon budgets, currently set though to 2032, have been laid down in Parliament and provide a carbon reduction trajectory that the UK must adhere to allow the 2050 carbon reduction target be met. Each carbon budget provides a forecast for a permissible level of carbon emissions within a five-year period. The carbon budgets allow for an increasing reduction in emissions over time to allow for the implementation of necessary policy change and improved technologies to allow for the 2050 target to be met.

Carbon emissions from the Scheme have been tested against the five-year carbon budget period in which they arise to determine if the Scheme will have an impact on the UK meeting the 2050 target. The assessment presented in Chapter 14 concluded that the carbon impact of the Scheme would be within the carbon budget threshold and therefore not have a material impact. The updated assessment set out in the Applicant's response to the Examining Authority's First Written Question CC.1.6 [REP2-028] demonstrates the Scheme's Greenhouse Gas (GHG) impact as a proportion of total UK carbon emissions noted that it equates to 0.023% of the fourth carbon budget and 0.008% of the fifth carbon budget.

The revised carbon reduction target set within the Climate Change Act 2008 (2050 Target Amendment) Order 2019[1] (the 2019 Order), amends the Climate Change Act 2008 by revising the previous 2050 carbon target (an 80% reduction of greenhouse gas (GHG) compared to 1990 levels) to a net zero carbon target by 2050. The Committee on Climate Change responsible for setting the carbon budgets have acknowledged that to meet the new target a steeper reduction trajectory will be required and have stated that they will be reviewing the carbon budgets in 2020 to account for the new 2050 target. It has therefore not been possible to assess the Scheme against revised carbon budgets.

However, in any event the carbon assessment (which has been undertaken using a conservative, 'worst-case emissions' approach) has considered emissions from the Scheme in two separate phases, emissions during construction and emissions during operation. Construction of the Scheme is a short-term activity that will be complete by 2026. Emissions from construction therefore fall within the nearer term 3rd and 4th carbon budgets. Emissions from the operation of the Scheme will fall into the 4th, 5th and subsequent future budgets once set through to 2050. Whilst a reduction in the carbon budgets may occur in the 2020 review, the Committee on Climate Change has indicated that the trajectory will be steeper therefore it is later carbon budgets rather than near term ones which will see a greater impact.

[1] 2019 No 1056. The Climate Change Act 2008 (2050 Target Amendment) Order 2019

The assessment of carbon emissions presented in Chapter 14 of the ES [APP-052] included embodied carbon emissions within materials, such as concrete, to be used to construct the Scheme. The assessment concluded that the carbon impact of the Scheme would be within the carbon budget threshold and therefore not have a material impact. The updated assessment set out in the Applicant's response to the Examining Authority's First Written Question CC.1.6 [REP2-028] demonstrates that the Scheme's GHG impact as a proportion of total UK carbon emissions in the fourth carbon budget period, i.e. when construction occurs, is 0.023%.

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The assessment of carbon emissions presented in Chapter 14 of the ES [App-052] considers the carbon emissions impact of road users. Carbon emissions from road users have been calculated as part of the WebTag assessment process. Between 2026, the year of opening and 2032, the end year of the latest carbon budget to be set, carbon emissions from road users are estimated to increase by 16%. As stated in Chapter 14 of the ES, paragraph 14.3.7 however the uptake of lower carbon fuels, electric vehicle technology and the decarbonisation of the grid is not accounted for under the HA207/07 approach used for the carbon assessment. In practice therefore, as the measures contained in the UK Government Strategy 'Road to Zero'[1] published in 2018 are realised e.g. by 2030 between 50% and 70% of new car sales and 40% of new van sales will be ultra-low emission vehicles, and by 2040 all new car and van sales will be zero carbon vehicles. As this and

decarbonisation of electricity takes affect the carbon impact associated with road users will decrease and be significantly lower than the numbers identified in the assessment, which has been undertaken using a conservative basis.

As the national grid is decarbonised and the uptake of electric vehicles increases in line with Government Policy, so the use of electric vehicles in place of combustion engine driven vehicles will contribute to meeting UK carbon reduction targets. The projected increase in Electric Vehicles will also reduce the energy requirements of fume extraction systems within the tunnel reducing operational emissions further.

Highways England are also committed to reducing the operational emissions of the road network at a strategic national network scale, as well as on an individual infrastructure project scale. Highways England are investing in renewable energy technology and feasibility studies across the network to reduce carbon emissions, including renewable energy solar farms to support the energy requirements of road tunnels, and photovoltaic noise barriers to power signage, cameras and roadside detectors. Highways England are also reducing the emissions of assets and buildings and rolling out improvements to depot efficiencies as part of the depot greening programme, including fitting solar panels and using LED task lighting. These changes will further decrease the GHG emissions of the road network as a whole (over andabove the move towards electric vehicles and away from diesel and petrol vehicles).

[1] https://www.gov.uk/government/news/government-launches-road-to-zero-strategy-to-lead-the-world-in-zero-emission-vehicle-technology

My Response

I thank Highways England for clarifying that the scheme has been assessed against targets set out in the Climate Change Act 2008.

The targets used for assessment are at least a decade out of date, although Government policy is to follow the latest scientific advice.

These targets take the approach that we can carry on producing Greenhouse Gas (GHG) at similar levels as present, with a view to making future reductions as technology improves.

As acknowledged, new targets will need to be set to meet the latest commitments and these are due to be set out by 2020.

These will certainly need to greatly reduce the amount of GHG that can be produced in the immediate future, if the latest targets are to be met.

Unfortunately the Climate Emergency is now.

We cannot rely on future technology being developed, to save us from changing our ways.

Carbon Capture and storage is a highly uncertain and unproven solution. It has no known practical means of implementation on a large scale.

Switching to electric vehicles does nothing to reduce the huge Carbon Footprint of road building.

The GHG emissions from concrete production for the tunnel could be around 400,000 tons of Carbon Dioxide, depending on the detailed design.

A longer tunnel, which some parties are calling for, would increase this figure by about another 50%.

There is not enough Lithium production globally to sustain a mass switch to electric vehicles, nor are there enough reserves of Lithium known for the whole world to have such technology.

New technology may emerge in future, but this cannot be relied upon.

The Carbon Footprint of electric vehicle production is at least as high as for conventional vehicles.

Huge areas of countryside are already disappearing under solar panels, putting pressure on land use.

Recent news stories have highlighted the use of Sulphur Hexafluoride as an insulation material in the high voltage connections for solar and wind farms.

This material is now understood to leak into the atmosphere, where it has a GHG effect 35,000 times greater than Carbon Dioxide and is thought to remain in the air for thousands of years.

As such, we should not be progressing within any further such installations at all, without the implementation of an alternative solution.

Electric vehicles are not going to solve the Climate Emergency.

We have already had the hottest day on record this summer, with increasingly powerful storms and melting of polar ice caps.

We need to stop building more and bigger roads and look to alternative solutions, including improvements to public transport, if we are to have any hope of tackling the threats of Climate Change.

Response to Highways England **REP8 – 013 section 9.1** Comments on my **REP7 – 053** Comments on the Applicants response to Written Question **WQ – CC 2.4**.

Highways England Said:

The purpose of the climate change risk assessment presented in Chapter 14 of the ES [APP-052] is to identify the resilience of the Scheme to future climate change impacts.

This assessment has been undertaken in line with industry guidance published by the Institute of Environmental Management and Assessment (IEMA), Environmental Impact Assessment Guide to Climate Change Resilience and Adaption 2015[1].

IEMA guidance recommends using existing Met Office observational data and Met Office future Climate Change Projection data to identify historic, current and future baseline conditions. The IPCC baseline is not considered applicable for use in this assessment. The IPCC baseline considers climate change over the last century on a global scale. The purpose of the EIA is to assess the future impact of climate change on the proposed Scheme.

Chapter 14 presents the results of the climate change risk assessment undertaken using Met Office climate projection data published in 2009 (UKCP09). UKCP09 was the latest set of climate projection data available at the time the assessment was undertaken.

The Applicant's response to Written Question CC.2.4 presents an updated assessment of the resilience of the Scheme to climate change using the latest set of climate change projection data published in 2018 (UKCP18). CC.2.4 also presents a comparison between the climate change impacts identified using UKCP09 and UKCP18. In this comparison, the Representative Concentration Pathway (RCP) 8.5 scenario from UKCP18 was used, which is the scenario most similar to the UKCP09 'High Emissions' scenario that was used in the original assessment.

Therefore, the approach taken reflects the purpose required, i.e. the resilience of the proposed Scheme, and follows recognised practice as published by IEMA for the purposes of an ES, therefore there should be no adjustment as suggested. We trust that this clarifies and provides full understanding of what has been assessed and presented and this addresses the misunderstanding and misapplication in the points raised.

My Response

I thank Highways England for clarifying that the Climate Change Risk Assessment has assessed the resilience of the scheme against the effects of Climate Change, rather than the effect of the scheme on Climate Change. Although the Met Office data used dates from 2009, I have little doubt that a concrete tunnel will survive the effects of Climate Change.

What is much less likely is that life as we know it will survive the catastrophic effects of Climate Change, including the effect on the atmosphere of pouring hundreds of thousands of tons of concrete, with associated GHG emissions.

Long after mass extinctions have occurred, this great white elephant would remain, as a reminder of the folly of humanity.