

High Speed Rail (West Midlands - Crewe)

Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement

Volume 5: Technical appendices

Summary greenhouse gas calculation outputs
(CL-003-000)

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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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A report prepared for High Speed Two (HS2) Limited:

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1 Introduction

- 1.1.1 This document is an appendix to the climate change assessment which forms part of Volume 5 of the Supplementary Environmental Statement 2 (SES2) and Additional Provision 2 Environmental Statement (AP2 ES).
- 1.1.2 This appendix provides details of changes to the greenhouse gas (GHG) assessment since the production of the High Speed Two (HS2) Phase 2a (West Midlands - Crewe) Environmental Statement (ES)¹ published in July 2017 (the main ES).
- 1.1.3 The updated GHG assessment based on the calculations in this appendix is detailed in the SES2 and AP2 ES, Volume 3, Route-wide effects.
- 1.1.4 This appendix should be read in conjunction with Volume 5, Appendix CL-003-000² which accompanied the main ES.
- 1.1.5 In order to differentiate between the original proposals assessed as part of the main ES and subsequent changes, the following terms are used throughout the SES2 and AP2 ES to define the scheme as it relates to the HS2 Phase 2a project:
- ‘the original scheme’ – the Bill scheme submitted to Parliament in July 2017, which was assessed in the main ES;
 - ‘the SES1 scheme’ – the original scheme with the changes described in the SES1 that are within the existing powers of the Bill, submitted to Parliament in March 2018;
 - ‘the AP1 revised scheme’ – the SES1 scheme as amended by AP1 submitted to Parliament in March 2018;
 - ‘the SES2 scheme’ – the SES1 scheme with the changes described in the SES2 that are within the existing powers of the Bill; and
 - ‘the AP2 revised scheme’ – the SES2 scheme as amended by AP2.
- 1.1.6 This document presents the carbon footprint of the original scheme reported in the main ES and the change in carbon emissions from construction and over a 120-year operational period as a result of the SES1 and SES2 changes and AP1 and AP2 amendments.

¹ HS2 Ltd (2017), *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Environmental Statement*, <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>

² HS2 Ltd (2017), *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Environmental Statement, Volume 5: CL-003-000*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/627025/E34_CL-003-000_greenhouse_gas_outputs.pdf

2 Revised Carbon Footprint

2.1.1 Table 1 presents the carbon footprint of the original scheme reported in the main ES and the change in carbon emissions from construction and over a 120-year operational period as a result of the SES1 and SES2 changes and AP1 and AP2 amendments.

2.1.2 It is assumed that the changes and amendments will not impact the operational carbon footprint reported in the main ES. Accordingly the use stage and benefits and loads associated with mode shift have not been re-assessed. This assessment therefore reports no change to the operational carbon footprint reported in the main ES.

SES2 and AP2 ES Appendix CL-003-000

Table 1: The original scheme's carbon footprint from construction and over a 120-year operational period as reported in the main ES and as a result of the SES1 and SES2 changes and AP1 and AP2 amendments.

Life cycle stage	Module ³	Description	Main ES carbon footprint (tCO ₂ e)	Revised carbon footprint (tCO ₂ e)	Difference between main ES and revised carbon footprint (tCO ₂ e)
Before use stage	A1	Product manufacturing	666,000	655,000	-11,000
	A2				
	A3				
	A4	Transport of construction material to work site	171,000	184,000	13,000
	A5	Construction / installation process	533,000	612,000	79,000
Use stage	B1	Carbon sequestration from tree planting	-174,000	-174,000	0
	B4	Replacement of infrastructure	224,000	224,000	0
	B6	Operation of infrastructure	15,000	15,000	0
	B9	Operation of rolling stock	250,000	250,000	0
Benefits and loads associated with mode shift	D	Passenger mode shift	-364,000	-364,000	0
		Freight mode shift	-55,000	-55,000	0
		Surface access journeys to access HS2	112,000	112,000	0
Total residual carbon emissions			1,378,000	1,459,000	81,000

³ The GHG assessment takes a modular approach consistent with the principles set out in BS EN 15978, BS EN 15804 and PAS 2080 standards, i.e. Modules A1-A5 (Before use stage), Modules B1-B9 (Use stage), Module C1-C4 (End of life stage) and Module D (Benefits and loads beyond the system boundary).

3 References

HS2 Ltd (2017), *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>.

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