

Whole life carbon – Requirements Summary Note

Purpose:

This summary note explains which Network Rail projects should be completing whole life carbon assessment and reporting with immediate effect in line with DfT requirements and equivalent agreements in Scotland. The note also includes information on when and how ‘applicable projects’ shall complete carbon assessments and report data.

Applicability:

This summary note applies with immediate effect to Network Rail projects interpreted as having carbon assessment, reporting and reduction duties from DfT criteria (see Table 1a) or Scotland’s equivalent criteria (see Table 1b).

DfT ‘applicable projects’ are those where the following conditions apply:

- a) Anticipated final cost (AFC) in the DfT Tier 1, 2 or 3 funding bands
 - b) Formal business case submissions are required (via SOBC, OBC and FBC) to approve funding.
 - c) There are still **any** business case submissions due after the Tier-based trigger date (Table 1a).
- All **three** conditions need to apply for projects to be impacted by this summary note.

Transport Scotland ‘applicable projects’ are those where the following conditions apply:

- a) Anticipated final cost >£50m
 - b) Formal business case submissions are required (via OBC and FBC) to approve funding.
 - c) The **Outline Business Case** submission is due after 1st January 2023 (see also Table 1b).
- All **three** conditions need to apply for Scotland projects to be impacted by this summary note. *Projects where OBC was passed before 1st January 2023 are exempt even if FBC is due after 1st January 2023.*

The term projects used through this document should be interpreted as short-hand for DfT or Scotland ‘applicable projects’ unless otherwise stated.

This summary note details two high level actions that relate to whole life carbon assessments for Regions and other business functions that manage capital delivery projects:

- Applicable projects to complete and report whole life carbon assessments across all life cycle modules specified in NR guidance note NR/GN/ESD07 at the next business case stage, and onwards
- All applicable projects (regardless of business case stage or PACE milestone) to have completed an interim whole life carbon assessment by 1st April 2024.

Note 1: Applicable projects with legacy rights to follow GRIP shall complete their assessments and reports at end of current equivalent stage, and onwards.

Note 2: Projects that do not satisfy the applicability conditions above are currently exempt from DfT or equivalent Scotland requirements to undertake whole life carbon assessment, reporting and reduction. However, Network Rail projects that fall outside the DfT or equivalent Scotland criteria are still subject to internal Network Rail carbon assessment and reporting requirements in accordance with NR/L2/ENV/015 ‘*Environment and Social Minimum Requirements – Design and Construction*’; supplemented by guidance note NR/GN/ESD07 ‘*Managing whole life carbon in infrastructure*’. **Both these documents will be revised during 2023 to harmonise all projects to consistent whole life carbon assessment, reporting and reduction requirements.**

1. DfT requirements for whole life carbon assessment reporting on Tier 1, Tier 2 and Tier 3 infrastructure projects

In January 2022, Network Rail received requirements from the DfT to start completing whole life carbon assessments from February 2022 to support business case stages, as well as monitoring the transition from estimated figures to actual figures during construction and operation. The requirements were phased across three project funding tiers. Table 1a provides an expanded summary of the phased requirements.

Table 1a: DfT requirements aligned to three project funding tiers and business case status

Tier	Trigger Date	Requirements
DfT Tier 1 >£500m	1 st February 2022	For any business case [strategic outline business case (SOBC), outline business case (OBC) or full business case (FBC)] due after the trigger date the project shall: <ul style="list-style-type: none"> • Complete a whole life carbon assessment across the required life cycle modules and be able to present and report the findings. • Complete updated carbon assessment and reporting requirements through remaining business cases.
DfT Tier 2 £50- £500m	1 st July 2022	<ul style="list-style-type: none"> • Continue carbon assessment and reporting through design and construction PACE milestones until project completion and handover, replacing forecast data with actual data where available. <p>Note 3a: Retrospective reporting for business cases that were already passed before the trigger date is not required.</p>
DfT Tier 3 <£50m	1 st January 2023	

Scotland's Whole-Life Carbon Assessment Reporting Requirements

Scotland's DfT funded projects shall comply with the requirements highlighted above in Table 1a.

DfT financial tiers and reporting requirements do not apply to Scotland's Railway's projects that are funded by Transport Scotland and follow the STAG process and relevant business case stages. Scotland's Railway Sustainability Programme Board endorsed the requirement for whole-life carbon to be reported at business case stages. The below criteria and trigger date were developed and apply to Scotland's non-DfT funded projects.

Table 1b: Scotland’s whole-life carbon reporting requirements

Threshold	Trigger Date	Requirement
<p>>£50m</p> <p>Or any project going through IDM</p>	<p>1st January 2023</p>	<p>For any Outline Business Case (OBC) due after the trigger date the project shall:</p> <ul style="list-style-type: none"> • Complete a whole-life carbon assessment across the required life cycle modules and be able to present and report the findings at OBC. • Complete updated carbon assessment and reporting requirements through remaining business cases – i.e. FBC. • Continue carbon assessment and reporting through design and construction PACE milestones until project completion and handover, replacing forecast data with actual data where available. <p>Note 3a: Retrospective reporting for business cases that were already passed before the trigger date is not required.</p> <p>Note 3b: Where a Capital Carbon Assessment has already been undertaken for a project required to report at OBC, the project shall report Capital Carbon at OBC, with a view to completing a Whole-Life Carbon assessment as soon as reasonably practicable and report at the next PACE milestone and at FBC.</p>

2. ACTIONS

a) Once a project passes the trigger criteria in Table 1a (or Table 1b for Scotland) whole life carbon assessment must be completed and data available for submission at the next due business case and/or PACE phase. The whole life carbon assessment shall address the life cycle modules of PAS2080 and BS EN 17472 as specified in NR guidance note NR/GN/ESD07. The RSSB Rail Carbon Tool (RCT) shall be used for carbon assessments, in accordance with NR/L2/ENV/015. If projects wish to pilot the use of alternative carbon assessment platforms approval should be sought from the appropriate Regional Head of Sustainability. Heads of Sustainability should consult with the TA Energy & Carbon Strategy Manager when approving alternative tools.

Note 4: Blank Network Rail project templates are available in the RCT to align carbon assessments against the life cycle modules of PAS2080 and BS EN 17472.

b) Projects that have submitted business cases after the trigger dates outlined in Table 1 (or Table 1b for Scotland) without including carbon assessments, must retrospectively undertake whole life carbon assessments as soon as reasonably practicable, without waiting until their next due business case or PACE milestone. For Scotland, where a Capital Carbon Assessment has already been undertaken for a project required to report at OBC, the project shall report Capital Carbon at OBC, with a view to complete a Whole-Life Carbon assessment as soon as reasonably practicable and report at the next PACE milestone and at FBC.

- c) In the unlikely event that a renewals project satisfies the applicability criteria stated for this document the carbon assessment needs only cover the system boundaries associated with life cycle modules B4 and D (as defined by BS EN 17472:2022).
- d) Carbon assessment for applicable projects shall be completed or updated **and** carbon data reported at each of the following business cases and PACE milestones (see Note 5 for exclusions and Note 6 for PACE/business case relationships):

Table 2: Business Cases and PACE milestones at which carbon assessments data shall be available.

Business Cases	Additional Commentary (where helpful)
Strategic outline business case (SOBC)	Carbon assessment and reporting expected by applicable projects. SOBC not applicable to Scotland
Outline business case (OBC)	Carbon assessment and reporting expected by applicable projects.
Full business case (FBC)	Carbon assessment and reporting expected by applicable projects.
PACE milestones	Additional Commentary (where helpful)
PACE ES3 – Option Selection	Carbon assessment and reporting expected by applicable projects. Option selection carbon assessments need only focus on comparing carbon ‘hot spot’ variances between options. Carbon emission contributions that would apply to the same extent across all options may be discounted.
PACE Pre-ES4 – Early Design Development (Baseline)	Carbon assessment and reporting expected by applicable projects. Pre-ES4 is not an official PACE phase designation and will NOT have a formal milestone date. But it is important to have a carbon assessment milestone at this point to set a ‘reference baseline’ assessment against which carbon reduction achievements at ES4, ES5 and ES6 can be measured.
PACE ES4 – Design AIP (Approval in Principle)	Carbon assessment and reporting expected by applicable projects.
PACE ES5 – Construction Ready Design	Carbon assessment and reporting expected by applicable projects.
PACE ES6 – Construction Complete (As-built)	Carbon assessment and reporting expected by applicable projects. The as-built carbon assessment at ‘construction complete’ would be the last assessment required from the capital delivery team. This should be handed over as part of PACE ES7 project demobilisation and hand back to Sponsor.

Note 5: Carbon assessment and data reporting requirements only apply for business cases and PACE milestones that occur after the tiered trigger dates in Table 1.

Note 6: With the exception of SOBC it should not be necessary to conduct separate carbon assessments for business cases and PACE milestones. If whole life carbon assessments are completed at PACE milestones they will be available for reporting at the corresponding business case stages. For example, if a whole life carbon assessment is completed at Option Selection (PACE ES3) then this shall be reported at OBC. See Table 2 for more information.

Note 7: PACE Pre-ES4 is an unofficial designation to differentiate two carbon assessments that need to be done during the ES4 design development phase.

- e) DfT funding tiered projects that have passed trigger dates in Table 1 but are not due to reach their next business case or PACE milestone until after 1st April 2024 shall produce an interim carbon assessment and carbon data report by 1st April 2024. The level of detail and scale of estimation confidence should be appropriate to the project stage. See clause 2.g) and Note 8 for reporting format.
- f) Accountability for assuring that required carbon assessments are undertaken will sit with the Sponsor or Project Manager. But responsibility for undertaking carbon assessments and compiling any summary reports may be allocated to the designer (typically for ES3, Pre-ES4, ES4 and any business cases during these phases) and/or the principal contractor (typically but not limited to ES5 and ES6 and any business cases during these phases). Other parties may also pick up shared responsibilities and consultation roles, such as regional environment and sustainability teams who can advise on carbon management activities. A detailed RACI matrix is under development to map carbon accountabilities, responsibilities and consultation duties. Further discussion is needed to determine if this carbon RACI approach is considered useful and should be fully developed and officially endorsed.
- g) The Project Manager should submit project carbon assessment summary reports to their Regional sustainability team at each applicable PACE phase, using the agreed NR carbon reporting summary template. Regional sustainability teams should forward project carbon assessment summary reports to the Technical Authority mailbox (energy-carbon-strategy@networkrail.co.uk).

Note 8: **Appendix A** is proposed as an interim NR reporting template; until more sophisticated whole life carbon data processing and reporting interfaces can be introduced for use across the business. The Designer/Contractor will have responsibility to fill in the reporting template and the Project Manager must submit this to their Regional Sustainability Team. The DfT have issued an alternative reporting template and further assessment is needed to determine which format best meets NR's needs.

- h) Regional capital delivery teams should apply assurance (equivalent to Level 1 of Network Rail assurance framework) to confirm that whole life carbon assessments are being undertaken for all applicable infrastructure projects and required life cycle modules are included in the assessment boundaries. The **Appendix A** reporting template can support this exercise. Regions will also be required to provide appropriate evidence to confirm how they have reduced carbon on individual infrastructure projects. Further independent assurance activity may be instigated by the Technical Authority.

- i) A list of applicable DfT funded Tier 1, Tier 2 and Tier 3 enhancement projects has been identified by the Railway Investment Centre of Excellence and provided to the regions. If the regions are aware of projects missing from the list, they should contact Technical Authority Environment and Sustainable Development Energy & Carbon team (via energy-carbon-strategy@networkrail.co.uk) to improve its accuracy and ensure whole life carbon assessments are completed for all projects meeting the Tier 1, Tier 2 and Tier 3 criteria as set out in Table 1.
- j) The Network Rail guidance note, NR/GN/ESD07 'Managing whole life carbon in infrastructure' (currently Issue 2) can be used by all parties involved in infrastructure carbon assessment. ESD07 is structured to provide guidance on the following key aspects:

Themes	ESDS07 sections
Understanding the concept of system boundaries for carbon assessments	Section 5
Specifying the system boundaries for different project types	Section 6
Getting the best from the RSSB Rail Carbon Tool	Section 7
Practical carbon assessment across different life cycle modules	Section 8
Introduction to shadow carbon pricing	Section 9
Allocation of value chain roles and responsibilities through PACE phases	Section 10

Note 9: As part of its post implementation review NR/GN/ESD07 will be revised and updated to Issue 3 by 28 February 2023. This will include identification of content that needs to be elevated from guidance to requirements through the revision of NR/L2/ENV/015 (see section 1.2).

3. Challenges

There has been inconsistent interpretation of the DfT carbon assessment and reporting requirements resulting in carbon assessments not being completed and reported at the required business case stage for tiered infrastructure projects. Only 25% of our project portfolio has completed and reported carbon assessments so we have not met our commitment to the DfT.

There are known challenges with the functionality of the RSSB Rail Carbon Tool, including restricted access to project data, absence of application programming interface (API) capability to upload data into reporting platforms, and poor content on predetermined carbon baselines for regions to benchmark their carbon reduction effort. Carbon factors held within the tool are out of date and not subject to regular review/update. There is also limited evidence of how the tool will handle whole life carbon data across all PAS 2080 / BS EN 17472 life cycle modules. Some practical solutions are addressed through section 7 of

ESD07. Additional activities are being incorporated into the work plan (section 4) to address medium to longer-term improvements.

4. Work plan

We are developing and consulting a master work plan of projects and initiatives to improve management of infrastructure whole life carbon across Network Rail up to the end of CP6 and beyond.

The master plan will be published in due course to establish visibility and governance across the agreed project activities. Work plan content has been removed from this document to eliminate risk of conflicting versions with inconsistent project descriptions and/or milestone delivery dates.

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Summary of changes since previous version:

- *Correction applied to definition of Scotland applicable projects (p1)*
- *Minor edits to Table 2 for Pre-ES4 phase (p4)*
- *Minor edits to Note 7 and clauses 2.e and 2.f for Pre-ES4 phase (p5)*
- *Previous content on the whole life carbon work plan has been removed from section 4 to prevent risk of conflicting versions (pp 7)*

Please note that further updates to this paper will be made as work progresses.

Appendix A: Interim Network Rail min-max whole life carbon reporting template - See attached