

Decarbonisation Programme - Workstream 13

Carbon Innovation Hopper and Carbon Innovation Funding Request Protocol

1. Purpose

The Carbon Innovation Hopper is an initiative to promote ideas for reducing the whole-life carbon footprint of rail infrastructure and request funding from the Decarbonisation Programme, Workstream 13 (WS13) to progress the most interesting ideas where a significant, scalable carbon reduction is viable. It's a bit like a 'Dragon's Den' but with a specific focus on infrastructure carbon reduction.

Infrastructure is taken to include all physical structures, buildings and assets that directly or indirectly support the operation of the business and railway network.

Opportunities for innovation can include any change to an existing conventional solution such as, but not restricted to, new materials/products, changes in the design of key infrastructure elements, lean changes to processes or process logistics, etc.

The Carbon Innovation Hopper will initially be open for two periods from 1st April to 31st May 2020.

2. What types of activities might be given financial support?

The overall purpose of Carbon Innovation Hopper funding is to help progress low whole-life carbon ideas towards practical application where the Network Rail originator does not have access to local funding for this type of activity. Funding could be available for the following activities:

- 2.1 Technical research/feasibility studies into new materials, products, designs, construction methods, etc. that could deliver a scalable carbon reduction compared to current BAU practise.
- 2.2 'Reasonable contributions' towards engineering acceptance testing and certification of low carbon materials, products, designs, construction methods to prove viability in a railway environment.
[Note 1: Reasonable contributions – might need to factor in proportionate contributions from other joint parties, particularly where those other parties will derive commercial benefit if the changes prove successful, viable, and establish new commercial opportunities for those parties.]
- 2.3 Changes to NR standards to accelerate the adoption of new practises.
- 2.4 Advance procurement of products for free provision to the business during the transition period towards new policies and technical standards.
[Note 2: This is an extreme case for funding and would need a formal technical investment paper to be approved by the STE investment panel. The investment paper would need to be under-written by at least four tests:
 - a) *written quantified declarations from the business functions that the products will be used;*
 - b) *a clear quantified declaration of the carbon and cost benefit derived from the advance procurement strategy;*
 - c) *a mitigation plan and contractual liability arrangements for the storage and maintenance of products in satisfactory, viable condition;*
 - d) *contractual mitigation for commercial liabilities if the product stocks are under-utilised; etc.]*

3. How to submit a request for funding to explore an innovative option for reducing carbon

An application for funding is initiated using the Carbon Innovation Funding Request (CIFR) form shown at **Appendix A**. All parts of the CIFR must be completed.

Completed CIFR forms shall be submitted to clive.jones@networkrail.co.uk

4. How will carbon innovation funding requests be evaluated to decide which ones to support?

4.1 Core Requirements

There is a limit to the Decarbonisation Programme budget available for progressing innovation so a process is needed to decide which options to support.

The overriding requirement is that a CIFR proposal must show a persuasive case that the following five tests will be met:

- a) There would be no increase in safety or health risk or reduction in life-cycle performance of the asset to which the innovation applies;
- b) The innovation would reduce carbon across the **whole-life** of the asset type to which it applies;
- c) Once adopted as standard practise the carbon reduction innovation would also deliver a net neutral or reduced cost across the **whole-life** of the asset to which it applies;
- d) The carbon and cost savings would be achieved each time this new solution was applied and would therefore deliver a cumulative benefit compared to the previous method.
- e) The costs of initial feasibility and engineering acceptance testing would be either fully recovered within a specified time from improved whole-life cost efficiencies once the new innovation became normal practise or were considered a worthwhile investment for the carbon reduction alone.

Note 3: In many cases the answers to tests 4.1a) to 4.1e) may not be known until feasibility studies and engineering acceptance testing and certification have been undertaken, so the brief for these studies must specifically seek confirmation and quantified data to illustrate that these tests will be satisfied.

4.2. Scoring Index

Further work is being considered to establish a scoring index to rank and prioritise CIFR submissions based on factors such as:

- Maturity of carbon reduction forecasting;
- Normalising the predicted scale of carbon reduction per £ of investment.

This protocol document will be revised in due course if the scoring index is developed.

4.3 Levels of assessment applied to CIFR submissions:

4.3.1 Triage Assessment

An initial review undertaken by a single member of the Decarbonisation Programme WS13 team.

- The principal purpose is to check the submission for completeness and that the logic of the carbon reduction opportunities seem feasible.
- The triage assessment may require clarifications from the CIFR originator.
- Depending on the robustness of the submission, the type of action proposed, and level of funding being requested, the triage assessor may be able to recommend the proposal for funding approval. More typically the Triage assessment will approve the CIFR to be put forward for Panel Review.
- A funding approval recommendation could be endorsed by a Decarbonisation Programme Senior Programme Manager if the funding request is within their financial authority.
- If the funding request is approved in principle but exceeds the financial authority of the Senior Programme Manager the CIFR would automatically progress to Decarbonisation Programme Board Approval (see 4.3.3).
- Feedback will be provided to those who submit CIFRs.

4.3.2 Panel Review

Once CIFRs have been clarified via the triage assessment most will be escalated to Panel Review. This is a more critical review by a small group of multi-disciplinary parties, including carbon and engineering.

- The principal purpose is to test the benefits return and any risks associated with a proposal.
- Depending on the volume of CIFRs submitted a panel review may be convened once per period.
- Panel reviews will aim to be completed within 2 periods following the closing date of the Carbon Innovation Hopper, 31-May-20.
- The Panel review may seek further clarifications from the originator.
- The panel review will either recommend the proposal for immediate funding approval, decline the request, or propose an alternative course of action such as centralised R&D funding application.
- Funding approval would be endorsed by a Decarbonisation Programme Senior Programme Manager if the funding request is within their financial authority.
- If the funding request is approved in principle but exceeds the financial authority of the Senior Programme Manager the CIFR would be progressed to Decarbonisation Programme Board for alternative funding (see 4.3.3).

4.3.3 Decarbonisation Programme Board and STE Investment Panel Approval

If a funding request is approved in principle but exceeds the financial authority of the Senior Programme Manager the CIFR would be progressed to Decarbonisation Programme Board and STE Investment Panel for financial approval. This would require:

- A formal investment paper and slides to be prepared and presented by the CIFR owner/originator in an approved format.
- The investment paper and slides to include quantified data to illustrate that tests 4.1a) to 4.1e) will be satisfied.
- Where advance procurement of products for free provision to the business is being proposed, as per clause 2.4, clear evidence that the commercial risks from clause 2.4, Note 2 a)-d) will be mitigated.

Appendix A - Carbon Innovation Funding Request (CIFR) Form

1. Title of bid proposal:	
2. Name of NR bid proposer:	
3. Date of bid proposal:	
4. Version number of bid submission:	
5. Brief summary of what is being proposed and how this would deviate from the conventional approach:	
6. Qualitative description of the anticipated whole-life carbon and cost saving opportunities compared to the existing conventional approach:	
7. Are there any outline / estimated figures for the anticipated saving in whole-life carbon and cost compared to the existing conventional approach?	
8. What might be the estimated scale of carbon and cost benefit based on the volume of application across CP6 and CP7?	
9. Would this change be transferable to other applications?	
10. How would you use Decarbonisation Programme funding to progress the feasibility of this proposal? (i.e. Please propose a breakdown of the activities needed to progress this proposal through feasibility, proof of concept, engineering approval, etc.)	

<p>11. Which key engineering stakeholders would need to give formal technical approval before this proposal could become a BAU solution? What is the current view of this engineering community?</p>	<p>Technical / Engineering Stakeholders:</p> <p>Current view of this community:</p>																				
<p>12. Which named engineering position would ultimately give technical approval for this proposal as a BAU solution? What is the current view of this accountable engineer?</p>	<p>Accountable Engineer:</p> <p>Current View:</p>																				
<p>13. Which key non-engineering business stakeholders would need to give formal approval before this proposal could become a BAU solution? What is the current view of this stakeholder community?</p>	<p>Non-Engineering Stakeholders:</p> <p>Current view of this community:</p>																				
<p>14. Which, if any, key external stakeholders would need to give approval for this proposal were to be adopted as a BAU solution?</p>																					
<p>15. Do you have an outline cost plan for progressing the feasibility, proof of concept, engineering approval of this proposal?</p>	<table border="1"> <thead> <tr> <th data-bbox="592 1317 978 1350">Activity</th> <th data-bbox="986 1317 1273 1350">Type of Supplier</th> <th data-bbox="1273 1317 1474 1350">Estimated Cost</th> </tr> </thead> <tbody> <tr> <td data-bbox="592 1350 978 1384"></td> <td data-bbox="986 1350 1273 1384"></td> <td data-bbox="1273 1350 1474 1384"></td> </tr> <tr> <td data-bbox="592 1384 978 1417"></td> <td data-bbox="986 1384 1273 1417"></td> <td data-bbox="1273 1384 1474 1417"></td> </tr> <tr> <td data-bbox="592 1417 978 1451"></td> <td data-bbox="986 1417 1273 1451"></td> <td data-bbox="1273 1417 1474 1451"></td> </tr> <tr> <td data-bbox="592 1451 978 1485"></td> <td data-bbox="986 1451 1273 1485"></td> <td data-bbox="1273 1451 1474 1485"></td> </tr> <tr> <td data-bbox="592 1485 978 1518"></td> <td data-bbox="986 1485 1273 1518"></td> <td data-bbox="1273 1485 1474 1518"></td> </tr> </tbody> </table>	Activity	Type of Supplier	Estimated Cost																	
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<p>16. Estimated time to bring this proposal into pilot scale – if funding support is available.</p>																					
<p>17. Estimated time to adopt this proposal as a BAU approach, subject to business approval and modification of associated engineering standards.</p>																					

Please return completed forms to:
Clive Jones - clive.jones@networkrail.co.uk

