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PIARC Special Project

Carbon neutrality of the road sector

CALL FOR PROPOSALS

Deadline for submission of proposals: 23 February 2022

1 PURPOSE AND STRATEGIC SIGNIFICANCE

1.1 Introduction

Reaching carbon neutrality is one of the main policy goals at UN level and in many countries. Transport must contribute, and can do that through reduction of transport demand, innovation, better usage of existing infrastructure, for example. We also need to consider the construction, maintenance and operation of the roads and the road infrastructures also have impact on the GHG emissions and should be optimized to reduce their overall impact.

Roads and road transport are frequently seen as a major culprit in the climate change debate:

- modal transfer is an established policy; however, implementation is very long
- carbon neutrality investments are less often directed to roads; however, the road sector is very innovative, and many such innovations can reduce GHG emissions

Therefore, the World Road Association (PIARC) has established a special projects mechanism to enable it to respond outside the usual four-year technical committee cycle to emerging issues and priorities identified by its members. This paper is a call for proposals to lead a special research project on the “Carbon neutrality of the road sector”.

1.2 Definition of carbon footprint and carbon neutrality

Carbon footprint: is the total amount of greenhouse gas emissions caused directly and indirectly by a nation (equivalent to consumption emissions), a business, a product (equivalent to lifecycle emissions) or a person.¹

Carbon neutrality: is having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. Removing carbon dioxide from the atmosphere and then storing it is known as carbon sequestration. A carbon sink is any system that absorbs more carbon than it emits. The main natural carbon sinks are soil, forests and oceans.²

Net zero: is reducing carbon emissions to as close to zero as possible, with the small amount of remaining emissions absorbed through natural carbon sinks like forests and new technologies like carbon capture.³

1.3 Context

This project should consider the issues on a global basis. To help set the context, we will briefly consider an example from the European Union.

[The European Green Deal](#) sets out that the transport sector accounts for a quarter of the EU's greenhouse gas emissions and still growing. To achieve climate neutrality, a 90% reduction in transport emissions is needed by 2050. Road, rail, aviation, and maritime (including fresh

¹ Committee on Climate Change, 2013, Reducing the UK's carbon footprint, <https://www.theccc.org.uk/wp-content/uploads/2013/04/Reducing-carbon-footprint-report.pdf>

² [What is carbon neutrality and how can it be achieved by 2050? | News | European Parliament \(europa.eu\)](#)

³ UK Government, 2021, *Net Zero Strategy: Build Back Greener*, Government policy paper, <https://www.gov.uk/government/publications/net-zero-strategy>

water) transport will all have to contribute to the reduction. Achieving sustainable transport means putting users first and providing them with more affordable, accessible, healthier, and cleaner alternatives. Changing mobility needs is also required to achieve those goals.

The negative perception of roads is counterproductive as they represent the overwhelming majority of land transport and only a fraction of CO₂ (carbon dioxide) emissions. Any gain made on roads now benefits from a large multiplier effect and can contribute very significantly to reaching carbon neutrality. Further, transit and shared mobility still need roads to operate. Road transport also provides numerous societal and economic benefits.

1.4 Purpose of the project

This project will analyse measures to improve the political acceptance of roads in a carbon neutral context. It will consider the contribution of road-positive strategies to carbon neutrality. The project will compare national policies on these issues. Special attention will be paid to all transport that uses roads: freight, public transport, shared transport, private vehicles, etc. The project should also consider the carbon footprint of the road infrastructure, road transport and the interdependencies between them.

This should consider the construction, use, maintenance and end of life phases.

- We would like the successful consultant to set out the assumptions which have been made and what is out of scope.

Issues to be analyzed:

- How can road agencies influence a reduction in greenhouse gas emissions through:
 - changing their approach to operations and maintenance?
 - Improving the strategic road (motorways/highways/freeways and other roads of national importance) network?
 - Influencing the behavior of end users?
- What policies are already being implemented by road agencies (with a focus on infrastructure construction, maintenance and operation) to implement carbon reduction targets? What can we learn from those at the forefront of these efforts and their effectiveness in short and longer term?
- What further contributions can the road sector make towards carbon neutrality and decarbonization of transport in general without impacting the level of customer service delivered to our constituents?
- Which current policy measures are causing social inequality, with a particular focus on cross-border barriers, business models and incentives?
- What role can public agencies play in increasing public acceptance of roads through behavioral change?

At a high-level, the project will also consider relevant innovations, such as:

- Alternative fuels (hydrogen cells, for example)
- Electric vehicles and charge points
- Electric road systems: delivering electricity by the infrastructure to the vehicles in motion
- Policies to incentivize:
 - Public transport
 - Increasing electric vehicle uptake
- Connected mobility and smart traffic management systems enabled by digitalization, such as vehicle-to-infrastructure communication
- Freight:
 - Zero emission road freight trials to develop cost effective zero emission HGVs and their refueling infrastructure.
 - Last-mile deliveries using unmanned aerial vehicles
- Road surfacing: latest design, maintenance policies and new materials

This work will establish best practice and set out recommendations for PIARC members to support them achieving carbon neutrality. It should also aim to establish high-level publishable material, including case studies as well as broad global greenhouse gas reduction estimates, that PIARC can use to highlight the positive role the sector plays. As data in climate change policy can be controversial, any figures, data or estimates need to be supported by credible sources or for the methodology to be set out. It may also establish recommendations for the PIARC association, e.g., terms of reference for future taskforces, committees or other actions.

1.5 Out of the scope

We want to avoid a report or review which passes judgement on a country's policies or compares the approaches taken in different countries.

Policies to adapt to climate change and energy production processes are out of the scope for this project. Whilst a number of countries are focusing their decarbonization activities around more ambitious net zero targets, to ensure recommendations and suggestions can be realistically implemented by LMI countries (low to middle income countries, as per the World Bank's 2021 classification), we would like to focus the research on carbon neutrality rather than net zero. In the same vein, we want to avoid a debate around electricity production as different countries have different methods, which align with political trends.

We would also like to move away from an in-depth comparison of various technologies, such as a consideration of their advantages and disadvantages.

Further, proposals should be based around current lifestyle trends globally. We are not looking for recommendations, which would suggest that people must stop doing certain things (not

drive cars, for example) to achieve the proposed goals. We are keen to understand and hear proposals that support the objective of taking carbon out of roads but not hinder the movement of people, goods and services.

When carrying out the research, we are interested in understanding the policy arguments rather than focus on statistics which can sometimes be confusing and be a cause of disagreement between different parties. For example, for the analysis of the congestion elimination measures, we would like a literature review of the different measures in different countries, rather than a numerical analysis of the impacts of different measures as regulations and analytical methodologies differ from country to country. Where we are comparing different measures, we would like the comparisons to be based on a common goal/target to ensure parity. However, figures and data which are well supported by evidence and enable us to highlight the positive role of roads are acceptable.

Several international organizations, such as UN agencies, NGOs and charities, are also analysing or addressing carbon neutrality. We will not duplicate their work but would like to leverage and helpfully position ourselves within this work.

2 METHODOLOGY AND APPROACH

2.1 Key areas

Please describe the key areas for consideration in the framework:

1. How will you collate information from different road administration authorities, transport regulators and operators, other public administrations, academia and relevant industry from international road sector, including successful and unsuccessful case studies?
2. LMIC represent an important share of PIARC membership, and it is crucial that their needs, opportunities and challenges are addressed within PIARC activities. It will take these countries longer to increase the number of zero emission vehicles for example.
 - a. How will case studies from LMIC be collated?
 - b. How will their needs be taken into account?
 - c. How will some of the findings of the project will be identified as particularly suitable for LMIC?
 - d. How will you ensure any recommendations/next steps can be implemented by LMIC?

2.2 Approach

Proposals in response to this call should use the template “Answer to the Call for Proposals for the Carbon neutrality of the road sector PIARC Special Project”. The answer should include a description of the approach to be taken to collect and compile the information being requested.

The proposal should answer the following questions about the tenderer’s approach:

1. How will the study collect international information regarding the carbon neutrality of the road sector?
2. How will the study collect world-wide case studies, policies and business cases that deal with carbon neutrality?
3. How will the study identify challenges and opportunities for road policies dealing with carbon neutrality?
4. How will the study analyze a business model from a nation and road administration perspectives?
5. How will the study consider the reality of lower to middle-income countries and provide specific recommendations to them on carbon neutrality?
6. What will be the study milestones in terms of deliverables? What will be the approach for monitoring the progress and to include the inputs from the Project Oversight Team (POT)? It is recommended to organize monthly videoconference, and to share with the POT regularly intermediate deliverables asking for feedback.
7. How will the management of the project be organized, including quality assurance and quality control without taking significant resources from the project?

8. How will you mobilize the diverse range of skills needed to complete this work? We consider that the range of skills needed includes understanding technologies, collecting case studies, analyzing policies, establishing greenhouse gas reduction estimates [statistical/data analysis].
9. What indicators or measures will you use to evaluate the policies and case studies?

2.3 Options

The proposal can be structured as a core proposal plus additional options.

The bid would then include a core proposal within the proposed budget, and then some options which would be described in detail as well as priced.

If the bid is selected, PIARC would place the order for the core proposal and maybe as well for some of the options. This would be done at PIARC's discretion.

In any case, the core proposal must answer all the expectations which are presented in this call for proposals document and to fit in the budget presented below.

3 FINAL DELIVERABLES

The final deliverables will include:

3.1 Summary report

We ask a minimum for a collection of case studies and a report analyzing the studies and making recommendations.

A **literature review or a collection of case studies** of published policies and/or strategies on carbon neutrality in the roads sector.

A **final report**, which analyses the studies and makes recommendations for PIARC members to consider. A possible structure of the final report could be as follows:

Executive Summary

1. Introduction: project background, objectives and scope.
2. Methodology and approach.
3. Description of the road sector carbon footprint today and the engagements to reach carbon neutrality or net zero.
5. Case studies analysis from around the world.
6. Outcomes of the literature review.
7. Description of potentials and challenges in this field.
8. Conclusions of the study.
9. Recommendations for road administrations, LMIC and PIARC.
10. References
11. Appendices

Each chapter of the report should make reference to LMICs, when relevant. A chapter inside the report's conclusions, with possible **specific recommendations for LMIC** should also be considered.

The specific recommendations for public administration bodies and transport regulators are a key element of the report. They should be relevant for policy advisors, decision makers and operators.

The specific recommendations for PIARC could include recommendations to liaise with specific industries, take part in existing conferences and/or create a new technical committee / task force on the subject.

3.2 Dissemination material

Presentation material to present the results of the Special Project at PIARC Council meeting in October 2022 in Dakar, Senegal (final date will be defined first semester 2022).

The selected tenderer will also be invited to join the meeting physically or via videoconference. The retained option should be specified in the proposal.

3.3 Voluntary contribution to the next PIARC Congress

Voluntary contribution to the Session on the Special Projects inside the World Road Congress in Prague, 2-6 October 2023. Retained consultant will be invited to join the session (participation is optional) and to provide inputs to the Session program. This contribution will be requested after finalizing the project and out of the project budget. So, this point is provided as information.

3.4 Intellectual property and formats

The final products will be submitted in electronic form in English, using the PIARC template for Technical Report and PIARC template for PowerPoint presentations.

The report will be owned by PIARC, and it will acknowledge the contribution of the external consultant.

PIARC will ensure translation into French and Spanish. In addition, they will make it available free of charge in the World Road Association's Virtual Library to ensure a large world outreach for the report.

4 KEY DATES

The proposal should also include a proposed draft of a work schedule. The schedule should identify dates or timeframes for accomplishing major milestones in the project. The work schedule will include monthly videoconference meetings and dates or timeframe for an interim product or products that allows adequate time for review and feedback prior to the final deliverable. The schedule must be completed, and final report should be delivered by September 20th, 2022, so PIARC can proceed to translation and dissemination of document in advance to participants to PIARC Council meeting foreseen in Dakar in October 2022.

These are some of the milestones to be included in the offer:

- 1st half of March 2022: Kick-off videoconference meeting.
- Intermediate milestones to be proposed by the tenderer.
- 20th of September 2022: Finalization of the report in English.
- 30th of September 2022: Finalization of Council presentation.
- October 2022, Presentation at PIARC Council meeting, in presence in Dakar or by virtual participation.
- 2-6 October 2023, Voluntary presentation at the World Road Congress.

5 PROPOSED BUDGET

The funding requested from PIARC should not exceed 47,700 Euros all taxes included.

Please provide a general budget for the project. The budget should include a general itemization of the costs of the major work elements of the project and provisional schedule of invoicing.

On 6 January 2022, the representative from the United States of America indicated that the federal government may be able to increase their financial contribution to the project should this be needed to achieve stronger outcomes. This would then serve to fund options.

Invoices will be processed only for completed and approved items, with 10% of each invoice payment to be held back until final deliverables have been accepted by the Project Oversight Team and approved by PIARC.

In line with EU regulations, the payment will take place 60 days after the acceptance of the invoice by the POT.

Since a timing delivery of the outputs is at the essence of the Special Projects mechanism, late penalties could be applied if the external consultant fails to deliver the outputs in the proposed milestones. In line with French regulations, if the delay is the contractor's responsibility, the penalties will be 1% of the budget per week of delay, with a grace period of 15 days, and up to a maximum of 5% of the budget.

6 PROPOSED EXPERTS AND INTERNATIONAL NETWORK

The proposal should also include a description of the relevant expertise that qualifies the contractor to undertake the project. Specifically:

- Please describe any past or current work projects that relate to the subject of this proposal.
- Please also identify the person or persons who will be working on this project, describing their roles and estimated contribution to the project, and providing information on their backgrounds, experience and expertise.
- Please provide information about any other international network, other than the World Road Association, from which tenderer could receive inputs.

7 PROJECT OVERSIGHT AND PROPOSALS EVALUATION

The project will be overseen by a project evaluation and steering committee called “Project Oversight Team” (POT) to select the preferred tenderer and assist in the development of the project. These experts will be drawn from PIARC membership and will include representatives from some technical committees. Some experts will be nominated by member countries and PIARC General Secretariat staff.

The POT will assess proposals and select the preferred tenderer based on its assessment of:

- a) Technical approach and methodology (up to 35 points): how the tenderer addresses the project objectives and deliverables, how effective and resilient the proposed approach and methodology are, including proposed international case studies and addressing the needs of different PIARC member countries, in particular the LMIC.
- b) Proposed work plan including intermediate milestones (up to 15 points).
- c) Value for money offered by the tenderer (up to 20 points): including the time offered by different contributors of the tenderer’s team.
- d) Experience of the proposed team on the holistic vision of the road sector (up to 10 points)
- e) Experience of the proposed team on the road policies and practices addressing social equity and accessibility (up to 10 points)
- f) International experience and network of the proposed team (up to 10 points)

The POT will oversee progress of the Project, including participating in periodic calls, reviewing interim and final products. The POT will also provide any relevant information from the PIARC work to the selected tenderer (e.g., information obtained from surveys) for use in the project. In addition to review and oversight by the POT, input may also be sought from the other members of Technical Committees and the PIARC Executive Committee and Strategic Planning Commission.

8 PROPOSAL SUBMISSION

Proposals should include the elements identified in this Call for Proposals.

Answers should use the Word template “Answer to the Call for Proposals for the Road Related Data and how to use it PIARC Special Project”.

Proposals should be submitted electronically in English to PIARC at:
info@piarc.org

no later than:
February 23, 2022

For any questions, please send E-mail to info@piarc.org