

PIARC (World Road Association) Strategic Plan - 2024-2027

TECHNICAL COMMITTEE 3.5 – ROAD INFRASTRUCTURE FOR ROAD TRANSPORT DECARBONIZATION

Overview

On-road freight and passenger transport represent over 75% of global inland transport and must decarbonize to achieve the goals of The Paris Agreement. TC 3.5 will share information from road agencies to accelerate deployment of best practices and avoid missteps by sharing lessons learned.

There are today a number of solutions for diminishing the carbon footprint from road transports. All solutions have their pros and cons and the needs differ among the nations. All solutions have their different energy, cost and socioeconomics challenges and it is important to understand these differences and how to face them.

The purpose of this TC includes sharing knowledge on the modern technologies and policy consideration to introduce electric roads.

There is also needs to produce more green energy among the nations, and the road sector has the possibility to contribute to the energy production by deploying smart energy solution on and along the roads. It is important to learn more about these possibilities.

TC 3.5 could play a leading role in exchanging knowledge and experience in decarbonization globally. Countries should be invited to share knowledge and experiences from their planned or conducted Research and Development projects as well as from demonstrators. Findings from these activities should be continually logged and extensive summaries from the reports will be translated into English and discussed inside the TC in order to produce a collection of case studies, a briefing note and a technical report on decarbonisation.

3.5.1 Study national strategies and policies for decarbonisation of the road passenger and freight transport sector and their objectives and deployment plans

Purpose: On-road freight and passenger transport represent over 75% of global inland transport and must decarbonize to achieve the goals of The Paris Agreement. TC 3.5 will share information from road agencies and give analysis to accelerate deployment of best practices and avoid missteps by sharing lessons learned.

Preliminary research questions:

- What policies and strategies are road agencies using to decarbonize transportation?
- What policies/strategies have been tried in different countries?
- What approaches have worked and why?
- What approaches have not worked and why?

Importance to roads agencies: Transport is one of the biggest sources of carbon pollution globally and road agencies have a role to play in reducing carbon pollution to avoid a climate crisis. All road transport stakeholders need to accelerate plans for reducing CO2. International cooperation and earning about nations' policies, strategies, and deployment plans are critical to achieve global carbon reduction targets.

Audience: This work will benefit for decision makers at road agencies across the world by increasing knowledge about how other nations are working on this important topic. Audience will be central/local governments and both public and private road agencies.

Deliverables: Literature review, technical report, case studies, survey, briefing note, seminar.

Low and lower-middle income countries: This work will help LMI countries learn from successful projects in high-income countries and help them avoid potentially costly mistakes made elsewhere. Sharing lower cost and/or lower-technology solutions can benefit all countries to support global learning.

Gender inclusion & diversity: This work will affect both men and women.

Potential duration: Ongoing during 4 years with part delivery after 2 years.

3.5.2 Study Electric Road Systems (ERS) to decarbonize the road transport sector

Study technical ERS solutions and impacts to environment, operating costs, safety, maintenance, and evaluate business cases and the policies and strategies needed for large scale deployment.

Purpose: Multiple ERS technologies have been studied since 2010 to power supply and recharge the batteries of electric vehicles while they are driving. ERS technologies have costs and benefits and are evolving rapidly as get closer to large-scale commercial deployment. It is important to analyse how electric road systems could be introduced and how they will change the road sector. TC 3.5 will share knowledge on technologies and policies for electric roads.

Importance to roads agencies: ERS will impact assets, safety, regulation, maintenance, operation, billing systems, vehicle manufacturers, automotive suppliers, etc. It is important to public and private road agencies for freight passenger vehicles and operators.

Audience: This work will benefit road agency decision makers around the world by increasing knowledge about work on this topic. Audiences include central/local governments, public and private road agencies, and fleet operators.

Deliverables: Literature review, technical report, case studies, survey, article in Routes/Roads, briefing note, seminar, workshop or conference.

Background to TC's work on this topic: The results from PIARC TF 2.2. Electric road systems.

Low and lower-middle income countries: Today, this technology is mainly developed in High-Income Countries but decarbonization needs are global and other countries will need to implement effective solutions to reduce carbon pollution. Deliverables will include consideration of technology development and deployment in LMI countries.

Gender inclusion & diversity: No gender or diversity exclusion identified on this topic.

Potential duration: Ongoing during 4 years with part delivery after 2 years.

3.5.3 Study solutions to decarbonize the road transport sector with a focus on road users, including technology solutions

E.g., static or dynamic charging, hydrogen, battery swapping) and financial dis/incentives (e.g., road pricing models).

Purpose: The purpose of this item is to share knowledge about modern trends for 1) providing vehicle fuelling on the roadside or at road related facilities, such as service areas. "Fuelling" includes electricity and other lower carbon fuels like hydrogen, CNG, and e-fuels. And 2) prioritizing low emission vehicles such as tolling policy in the toll roads, tariff policy of parking facilities.

Importance to roads agencies: This work is important to road agencies because nations are struggling to analyse and deploy technologies to decarbonize road transport and develop effective pricing strategies to support both economic and climate change goals. This work can highlight costs and benefits of different policy and technology strategies that have been successful globally.

Audience: This work will help stakeholders and decision makers identify the best solutions for the country or community. Audience will be central/local governments and both public and private road agencies.

Deliverables: Literature review, technical report, case studies, survey, briefing note, seminar.

Low and lower-middle income countries: This work will be useful to LMI countries in the same way for all nations since increased knowledge will help in future decision making.

Gender inclusion & diversity: This this work will relate to or incorporate gender and diversity aspects.

Potential duration: Ongoing during 4 years with part delivery after 2 years.

3.5.4 Study solutions for alternative energy production and sources in the road sector, including solar panels and wind turbines along road

Purpose: There is a need of producing more green energy among the nations and the road sector have the possibility to contribute to the energy production by deploy smart energy solution on and along the roads. It is important to learn more about these possibilities. These practices contain alternative energy sources for vehicles used in road patrol, maintenance. They also contain generating power within the rights of roads such as solar panels installed on the road-side slope.

Importance to roads agencies: This work is important for road agencies/road industry because an increased electrification of societies across the world will lead to an increased need of more production of green energy and different stakeholders within the road transport sector have the possibility to produce energy for their own use and some already also sell energy. Some remote areas can also have grid challenges to deliver power to road facilities and therefore production of energy can be of extra interest. There are innovations in particular technologies used in road patrol and maintenance such as electrification of vehicles, power free road lighting etc. Road agencies should introduce such technologies to their equipment and practice.

Audience: This work will benefit for decision makers within the road transport systems across the world by getting increased knowledge how nations work with this important topic. Audience will be both public and private road agencies. Various positions in road agencies will be interested including headquarters and local branches.

Deliverables: Literature review, technical report, case studies, survey, briefing note, seminar.

Background to TC's work on this topic: The work will be in collaboration with TC1.3 (greening public procurement).

Low and lower-middle income countries: This work will be useful to low and lower-middle income countries in the same way for all nations since increased knowledge will help in future decision making. If countries with grid challenges can produce their own energy for their road transport system by using smart solutions must be of great interest.

Gender inclusion & diversity: This work will affect both men and women.

Potential duration: Ongoing during 4 years with part delivery after 2 years.