

Inputs and feedback from WP.29 to the outline of the ITC climate change strategy and to the biennial report

Note prepared by the WP.29/GRPE informal task force on ITC climate change mitigation strategy.

Summary

For a successful inland transport climate change mitigation strategy, WP.29 has categorized its contribution to the draft ITC outline in two ways:

- a. What WP.29 and its subsidiary bodies¹ can do to contribute to the ITC climate mitigation strategy, labelled “WP.29 contribution” in the rest of this document:

WP.29 agreed to assess the GHG effect of its proposals. The exact procedure to perform such assessment would be defined after the endorsement by ITC of the proposal by WP.29 (paras. 14 and 26)

WP.29 agreed to contribute to the strategy by setting three overarching goals to help achieve reduction of GHG emissions from vehicles by

- Looking at the carbon footprint of vehicles over the lifetime, from cradle to grave (para. 15)
- Lowering and robustly measuring the GHG emissions and energy consumption of vehicles and their components during their use phase (paras. 16 to 21)
- Ensuring the safe deployment of carbon neutral technologies and powertrain (para. 22)

- b. What WP.29 recommends ITC to consider for an impactful climate mitigation strategy and/or what would be needed from ITC to help WP.29 achieve the ambition of the strategy, labelled “WP.29 recommendations to ITC” in the rest of this document:

WP.29 recommends ITC to :

- Develop a data driven strategy, with quantifiable metrics to measure progress and monitor its impact on GHG emissions of the inland transport sector (paras. 9, 12, 32, 38 and 43)
- Invite Contracting parties to share their inland transport decarbonization action plans in order to guide ITC and its subsidiary bodies into its priority actions to mitigate GHG emissions (paras. 23, 33 and 40)
- Ensure all legal instruments and the meetings of ITC and its subsidiary bodies are fit for hybrid meeting configuration in order to reduce GHG emissions from meeting attendance (paras. 24 and 29)

This document represents WP.29’s collected thinking based on our existing understanding, and further considerations of the proposal might be needed.

I. Introduction

1. At its 85th session, ITC “requested the secretariat, in close cooperation with the Committee’s Bureau and relevant subsidiary bodies, to develop an ambitious strategy document for reducing Green House Gas (GHG) emissions in inland transport based on international United Nations legal instruments under the Committee’s purview with priority actions for The Inland Transport Committee (ITC) and all its relevant subsidiary bodies,

¹ Throughout this document, reference to “WP.29” should be understood as “WP.29 and its subsidiary bodies”

supported by a strong action plan with milestones, for consideration and possible adoption by the Committee at its 86th plenary session (2024)” (Decision 44 (a))

2. ITC also “requested the secretariat to report biennially through in-depth reports to the Committee on climate change and inland transport, starting at the Committee’s 86th session in 2024” (Decision 44 (g)).

3. In a letter sent to all chairs of ITC working parties on 9 May 2023, the Chair of ITC and the Director of the Sustainable Transport Division invited “to provide your inputs and feedback to the outline of the climate change strategy as contained in the Annex to this letter as well as the biennial report for the 86th ITC session to Ms. Franziska. Hirsch (franziska.hirsch@un.org) by Friday 29 September 2023”.

4. At its 89th session, GRPE agreed to create an informal task force on ITC climate change mitigation strategy. The informal task force, open to all GRPE participants, aimed at developing the inputs as requested by ITC, and submitted to GRPE via a written procedure to deliver on time for the deadline of 29 September 2023.

5. At its 190th session, WP.29 agreed to have GRPE to consolidate the inputs to the ITC climate change mitigation strategy for WP.29 and its subsidiary bodies. All interested parties were invited to join the informal task force and/or to submit their inputs to GRPE to have them reflected in a consolidated input to be endorsed by WP.29 at its November 2023 session.

II. Inputs and feedback to the outline of the climate change strategy

6. The inputs and feedback from WP.29 are split into two categories for each section of the outline:

- a. What WP.29 can do to contribute to the ITC climate mitigation strategy, labelled “WP.29 contribution” in the rest of this document.
- b. What WP.29 recommends ITC to consider for an impactful climate mitigation strategy and/or what would be needed from ITC to help WP.29 achieve the ambition of the strategy, labelled “WP.29 recommendations to ITC” in the rest of this document.

1. Section 1: Inland transport and climate

WP.29 recommendations to ITC

7. WP.29 recommends the ITC strategy to first introduce past and present data on the evolution of greenhouse gas (GHG) emissions of the inland transport sector, and its contribution to overall GHG emissions.

8. WP.29 recommends the ITC strategy to show latest forward-looking projections as performed by the most prominent institutions, such as the IPCC, IEA or ITF, to show expected trends for the decades to come. WP.29 recommends the ITC strategy to then introduce the efforts needed to contribute to reaching the target set by the Paris agreement to limit “global temperature increase to well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees”.

9. WP.29 recommends the ITC strategy to be data driven, and to rely on quantified / quantifiable targets for its vision, missions, objectives, milestones and priorities. Those targets should ideally directly contribute to climate change mitigation and GHG emission reduction.

10. WP.29 recommends, as an early milestone of the implementation plan of the ITC strategy and as complimentary information to the background document prepared together with the draft strategy, that a review of what has been achieved during the last decades in terms of transport policies affecting GHG emission reduction is contemplated in order to

identify the best practices and the potential lessons learnt. These elements could potentially inform the work done in implementing the ITC strategy.

2. Section 2: ITC vision and mission on climate action

WP.29 recommendations to ITC

11. WP.29 recommends the ITC strategy to adopt a clear vision supporting the trajectory toward decarbonization of global inland transport by 2050.
12. WP.29 recommends the ITC strategy to consider any available means towards carbon neutrality to enable choosing the most adequate solution for each use case and place and take into account the specificities of each jurisdiction.
13. WP.29 recommends the ITC strategy to include a mission to monitor progress on the decarbonization of inland transport globally, via a data collection mechanism, and/or provide regular updates as part of the biennial report (para 42).
14. WP.29 recommends the ITC strategy to also consider a mission to assess the contribution of its subsidiary bodies to climate change mitigation. Such mission would potentially identify gaps and ways to improve the contribution from its subsidiary bodies and, if needed, to adapt/amend the ITC-administered instruments to maximize the mitigation potential of the activities of the subsidiary bodies.

3. Section 3: Strategic objectives

WP.29 contribution

15. As an overarching objective, WP.29 agreed to assess the GHG effect of its upcoming regulatory initiatives, keeping vehicle safety at equal importance. The aim of such assessment would be to ensure that activities performed by WP.29 are consistent with the decarbonization of inland transport and to increase awareness and transparency about GHG impact of WP.29 proposals and decisions. Implementation of such GHG effect assessment would be developed once the strategy is adopted by ITC.

16. WP.29 has identified three main strategic objectives to support the decarbonization of inland transport related to its existing and forthcoming activities:

- (a) Looking at the carbon footprint of vehicles over the lifetime, from cradle to grave
- (b) Robustly measure and lower the GHG emissions and energy consumption of vehicles and their components during their use phase
- (c) Ensure the safe deployment of carbon neutral technologies powertrain, and modes of transport

17. Below are example of existing and forthcoming activities in subsidiary bodies to WP.29, for each strategic objective identified:

(a) Looking at the carbon footprint of vehicles over the lifetime, from cradle to grave

18. To fully capture emerging technologies and their impact on GHG emissions, GRPE agreed to develop an internationally-harmonised procedure to determine the comprehensive carbon footprint lifecycle of all types of road vehicles, covering all phases of the vehicle life, from cradle to grave (from material extraction and processing, to manufacturing, use and dismantling/recycling) as well as energy chain (Well-to-Tank) in the years to come. GRPE notes the importance of harmonized definitions of the vehicles being addressed by the strategy, as different meanings are used in many countries / regions .

(b) Robustly measure and lower the GHG emissions and energy consumption of vehicles and their components during their use phase

19. GRPE contributed to globally-harmonized GHG tailpipe emissions measurement with the developments of UN GTRs Nos.2, 4, 15 and UN Regulations Nos. 101 and 154 that all

represented an important step forward in making CO₂ emission measurements more robust, vehicle specific and comparable.

20. GRPE agreed to continue developing and refining tailpipe GHG measurement methodologies, considering how to better reflect real world emission performances, and considering the need for developing such methodologies for inland transport modes under its portfolio that are currently not covered

21. GRPE would initiate discussions to collect information on the state of practice from the different countries/regions and explore the feasibility and potential benefits of globally harmonized regulatory tools to limit / set reduction targets to tailpipe GHG emissions, as already done in many countries/regions across the globe.

22. Vehicle lighting is one of the contributors to the energy efficiency. WP.29 and its Working Party on Lighting and Light-Signalling (GRE) have had preliminary discussions on reducing the power consumption of lighting devices. In the 85th session of GRE on 26-29 October 2021, GTB (The International Automotive Lighting and Light Signalling Expert Group) made a presentation GRE-85-37 titled "How to reduce power consumption in existing lighting functions without reducing safety".

23. The use of LED's has been a very good first step, but even more efficient solutions are necessary. Amendments to the regulatory provisions will be necessary to allow new technical solutions and lamp operation conditions. For that GTB is conducting independent research studies to assess the effective energy saving measures.

24. Last time GRE reviewed its subjects under consideration in the 87th session on 25-28 October 2022. The document GRE-87-26-Rev.1 includes attention to environmental aspects and zero emission mode light-signalling as potential future priorities.

25. Latest amendments to UN Regulation No. 117 (ECE/TRANS/WP.29/2023/8) provide a reduction of the maximum rolling resistance of tyres for all vehicle categories offering between 5% and 15% the rolling resistance coefficient, starting in 2024, for all tyres on the market, including aftermarket tyres. The estimated CO₂ savings are expected to be equivalent to removing 1 million vehicles from the road (GRBP-75-30).

26. To lower replacement needs of tyres, latest amendments to UN Regulation No. 117 (ECE/TRANS/WP.29/2023/8) also introduced wet grip performance requirements for worn tyres so their performance is constant over the lifetime. This is expected to reduce the need to prematurely replace tyres and improve their durability (GRBP-69-09).

27. GRVA works on regulatory developments under the 1958 Agreement to allow new braking technology, employing both electric control transmission and electric energy transmission. This technology is seen as an important element in the transition from vehicles employing internal combustion engines to alternatives powered by electrical energy.

28. It is recognized that trailers, while not directly emitting GHG at standstill or in motion, contribute to the emissions of heavy duty vehicles. GRVA, with the support of GRSG, is exploring the potential role of trailers to reduce these emissions. One of these measures/technologies for a reduction of these emissions is to equip trailers with an electric regenerative braking system and/or a propulsion system in its axle. These new axles in trailers have the potential to convert the kinetic energy of an axle to supply electric systems (e.g. cooling units for refrigerated trucks) as well as to support the motor vehicle (e.g. the tractor) during start-stop manoeuvres or during accelerating/braking. Such axles have the potential to lower energy consumption of the motor vehicle or the cooling units and therefore lower their CO₂ emissions. Such axles would have an impact on the safety concepts governing the braking of trucks and their trailers, hence the activities of GRVA.

29. GRVA agreed to consider the potential of connected vehicles / vehicle connectivity to address sustainability and circular economy.

30. As per the comments received from the expert from China and the reports of IPCC (https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter10.pdf), the impact of Automated Driving Systems and Intelligent and Connected Vehicles (ICV) technologies is difficult to evaluate. Such vehicles may have a positive impact on the single vehicle energy consumption and operation efficiency. They may have no obvious impacts on

the vehicle ownership. They may have a negative effect on the total mileage and. Proper policies and technical measures could support that the overall impact of ICV technologies on reducing GHG emissions from inland transport would be positive and contribute to the achievement of the ITC's GHG reduction strategic objectives.

31. GRSG has developed UN Regulations No. 122 on radiant warmers that allow to reduce energy consumption of the heating system of vehicles. GRSG also allowed in UN Regulation No. 46 the use of camera instead of large mirrors in trucks to reduce aerodynamic drag and reduce energy consumption.

(c) Ensure the safe deployment of carbon neutral technologies, powertrain, and modes of transport

32. The development and innovation in the field of automated and connected vehicles is ongoing. GRVA's input, actions and milestones might need to be revised, recognizing the nascent nature of the ADS technology and the high level of uncertainty regarding the ADS performance and impact.

33. GRSG, contributes to incentivizing the use of alternative mode of transport through activities improving accessibility of buses for all, specific safety for child transport in buses, and through activities to ensure better protection of vulnerable road users (often using active mobility modes of transport).

34. GRSP contributed to the development of the regulatory framework for the deployment of safe electric/hybrid-electric and hydrogen and fuel-cells vehicles (HFCV). UN GTRs Nos. 13 (HFCV), 20 (EVS), United Nations Regulations Nos. 94 (Frontal collision), 95 (Lateral collision), 100 (Electric power trained vehicles), 134 (HFCV), 135 (Pole side impact), 136 (Electric Vehicle, L category), 137 (Frontal impact with focus on restraint systems), 146 (HFCV of category L) and 153 (Fuel system integrity and electric power train safety at rear-end collision) pave the way to the de-carbonization of road traffic in all categories of vehicles ensuring the effectiveness of their roadworthiness systems (extracted from ECE/TRANS/2023/21).

WP.29 recommendations to ITC

35. WP.29 recommends the ITC strategy to provide top->down guidance on GHG matters to its subsidiary bodies:

- a. To help WP.29 and other subsidiary bodies to act on high-priority items, a detailed action plan from contracting parties (CPs) on their inland transport decarbonization strategy would help identify the most crucial elements to consider and to prioritize.
- b. ITC may invite some of its subsidiary bodies to pay closer consideration of non-vehicle parameters having a high impact on GHG emissions for road transport sector such as modal shift towards lower carbon transport modes, shared vehicle or distance covered, vehicle ownership (as already indicated in Annex III. to ECE/TRANS/2023/21. ITC and its subsidiary bodies might be willing to increase activities related to the deployment of the infrastructure needed to allow for a wide adoption of low-carbon technologies.

36. WP.29 recommends the ITC strategy to also ensure systematic provision of hybrid meeting possibility for its subsidiary bodies to reduce business travel and lower related GHG emissions; a monitoring mechanism of GHG emissions saved by remote participants might also be considered to quantify the related GHG emissions saved thanks to avoided travel.

37. The CO₂ emissions related to automated and connected vehicles may differ from the typical CO₂ emission of traditional road vehicles in their whole life cycle especially during their development and their use. It may be expected that the GHG/CO₂ emissions (or fuel/energy consumption) will be optimized and will not provide the same variability that drivers may cause.

38. The ITC strategy may wish to consider addressing unnecessary diversities and variabilities in terms of transport policies that could lead to a sub-optimum use of automated transport.

39. The automotive sector has already informed GRVA of the impact of small variations that occurred in the local implementations of international traffic rules set in road transport conventions. By comparison, it may already be anticipated that strategic differences in terms of transport management and rules may have a strong impact on harmonization and performance optimization. The impact of the vehicle environment on the vehicle performance may increase and might need to be considered.

4. Section 4: ITC-administered instruments to assist in mitigating climate change

WP.29 contribution

40. WP.29 conventions and agreements are appropriate for the existing tasks to deliver on globally harmonized methodologies to measure GHG impact of vehicles, as performed by GRPE as the main working party for coordinating the assessment all matters related to environmental impact of vehicle design, construction, use and dismantling (covering the “Improve” of the Avoid/Shift/Improve approach). Working parties other than the GRPE may be required to engage for areas outside of the GRPE’s expertise or authority.

41. WP.29 is ramping up the digitalization of the administrative processes as part of the three vehicle agreements, and fully digital solutions could potentially reduce the GHG footprint of the certification process. WP.29 administrative/certification processes could be reviewed with an aim to reduce GHG emissions

WP.29 recommendations to ITC

42. WP.29 recommends ITC to:

- a. Provide continuous support to WP.24 to further contribute to freight inter modal transport
- b. Support the creation of dedicated activities looking at the interactions between vehicles/infrastructure and energy sector to accelerate the deployment and adoption of carbon neutral alternatives.

Establish a link with urban city leaders such as through the UNECE forum of Mayors and relevant external networks

43. To ease the wider deployment of hybrid meeting options (para. 19), WP.29 recommends the ITC strategy to also review ITC-administered tools to allow for the possibility for remote participants to have the same rights and obligations as in-person participants. For example, all ITC-administered instruments should be fit for remote adoption/voting procedure.

5. Section 5: ITC Climate Action Plan with milestones – ITC to help deliver on climate goals

WP.29 contribution

44. By 2025, WP.29 would develop a methodology to determine carbon footprint over the whole life of new automotive products, from cradle to grave (as part of the A-LCA activities).

45. By 2030, WP.29 would assess the feasibility and potential benefits to further globally harmonize tailpipe GHG measurement methodologies for all vehicle categories, including heavy-duty vehicles.

WP.29 recommendations to ITC

46. By 2028, ITC to collect (either from existing sources or with dedicated data collection mechanisms) inland transport GHG emissions evolution over the years. Regular progress monitoring would also be covered (e.g. as part of ITC climate change mitigation biennial report).

47. By 2030, ITC to provide guidance to its subsidiary bodies on CPs inland transport decarbonization strategies (para. 21.a.). Such country/regional plans to decarbonize inland transport adopt similar approach to UNFCCC Nationally Determined Contributions (NDCs), also using similar timeline as UNFCCC's NDC submission cycle.

6. Section 6: List of priorities

WP.29 contribution

48. WP.29 commits to actively contribute to the following regulatory priorities as listed in ECE/TRANS/2023/21:

- a. Para. 14. (a): Decreasing carbon intensity over the vehicles' life; defining harmonized methodologies to determine the climate impact of vehicles during their lifetime that can then inform the corresponding regulatory framework; developing Carbon life cycle assessment (LCA) of vehicles a critical stepping stone
- b. Para. 14. (b): Developing of the harmonized international regulatory framework for facilitating the transition to alternative fuels and greening
- c. Para: 14 (c): support the acceleration of electrification. Enhancing vehicle fuel efficiency and increasing the adoption of EVs can play an essential role in combating climate emissions whilst improving air quality.
- d. Para 14. (h): Accelerated regulatory framework for digitalization of the sector, and integration of innovations and new technologies.

49. [WP.29] commits to:

- a. Speed up the delivery of on-going GHG related activities from the latest work programme (ECE/TRANS/WP.29/2023/1/Rev.2)
- b. Continuously explore new topics for future considerations and inclusion into the WP.29 work programme.
- c. Encourage the mobilization of sufficient resources to fulfil GHG-related priorities in a timely matter.

7. Section 7: Resource mobilization for the delivery of the strategy

WP.29 contribution

50. In order to deliver on the strategic objectives, action plan with milestones and list of priorities, WP.29 would benefit from greater implication and additional resources from all CPs signatories to the WP.29 agreements, together with a strong mandate from their responsible authority to develop those activities as part of ITC and their subsidiary bodies. More resources for type approval authorities and accredited technical services would help deliver more quickly on the ambitious ITC climate change mitigation strategy. Additional resources could include experts on climate change, energy production, vehicle assembly and disassembly, in-use assessment, and operator activity, including vehicle fuelling and charging in addition to the vehicle technical expertise normally provided by stakeholders to address vehicle emissions.

WP.29 recommendations to ITC

51. WP.29 recommends the ITC strategy to include the creation of a dedicated ITC secretariat staff to work on the implementation of the ITC strategy on climate change mitigation. This dedicated staff would be responsible for the implementation of the ITC climate change mitigation strategy and would coordinate actions:

- a. in between all ITC subsidiary bodies
- b. with other UNECE divisions, such as Energy, Environment, Statistics,...

- c. with other international activities and initiatives working on inland transport climate change mitigation, such as UNFCCC, ITF, SLoCaT,...

52. WP.29 recommends the ITC strategy to mobilize resources to ramp up data collection capabilities on GHG emissions from inland transport (in-house, or in cooperation with other bodies). this would make the deployment of the data driven strategy (para. 9) possible.

8. Section 8: Strategic partnerships for the delivery of this Strategy

WP.29 contribution

53. To help deliver on the strategy on climate change mitigation, WP.29 commits to regularly invite key global / international initiatives working on vehicle decarbonization to update WP.29 on their latest activities. Initiatives like the Breakthrough Agenda, the ZEV Transition Council, the WEF Circular Car Initiative, the G7 Transport Ministers' meeting, the G20 Transport Task Group, ... are examples of some of the most relevant activities related to some activities of WP.29.

WP.29 recommendations to ITC

54. WP.29 recommends the ITC strategy to consider the inclusion of a closer working relationship with the UNFCCC secretariat on inland transport, on the following activities, among others:

- a. Inland transport emission inventories: for example, electrification of the inland transport sector might require new approaches to attribute the use of electricity to end-use sectors, such as inland transport.
- b. Decarbonization plans and objectives: knowing CPs plan to decarbonize their inland transport sector would be key to a successful strategy; given the similarities with the UNFCCC NDCs, some bridges would be beneficial to ease the burden of CPs to submit their contribution. This is not meant to be a substitute for CPs determination of their individual contributions.

55. GRVA recommends, learning from the coordination challenges posed by the number of partnerships and projects on Automated Driving Systems (ADS), to carefully implement (a limited number of) partnership projects to facilitate implementation and maximize benefits.

III. Feedback to the biennial report on climate change and inland transport

WP.29 contribution

56. As done as part for the 85th session of ITC (Annex III. to ECE/TRANS/2023/21), WP.29 commit to update its contribution on the latest progress made on the activities performed under the framework of WP.29 for the biennial report. The WP.29 work programme / List of priorities of the GRs would also be used to update on the GHG-related activities.

57. For other vehicle-specific GHG-related activities not developed under the framework of WP.29, some key information would also be shared to be included in the biennial report, using different ways to collect the information:

- a. Information included in publication from external sources, such as the Global EV Outlook published annually by the International Energy Agency, and the accompanying EV policy tracker,...
- b. Sending a survey to WP.29 participants to enquire about latest GHG-related policy development in their jurisdiction for CPs, for their product/field of interests for NGOs

WP.29 recommendations to ITC

58. WP.29 recommends ITC to prepare the biennial report to include a GHG emissions data progress part from its 2028 edition (para. 27), in order to show the evolution of GHG emissions from the global inland transport sector.

IV. Conclusions

59. Given the challenge ahead to limit the impact of climate change, WP.29 congratulates ITC to take this initiative to develop the ITC climate change mitigation strategy and encourages an ambitious strategy, as requested to the secretariat. Through this contribution, WP.29 tackles both bottom-up (what can WP.29 do to contribute to the strategy) but also top-down (what WP.29 would recommend ITC to consider for a successful strategy).

60. WP.29 wishes every success to ITC for the adoption of this strategy and ITC can count on WP.29 to continuously contribute to this important task.

Annex I

European Association of Automotive Suppliers (CLEPA) position on Life-Cycle carbon footprint methodology for Vehicles.

1. CLEPA supports the activities initiated under the framework of the Working Party on Pollution and Energy (WP.29/GRPE) to determine an internationally-harmonised procedure to determine the comprehensive carbon footprint lifecycle of all types of road vehicles, covering all phases of the vehicle life, from cradle to grave
2. CLEPA believes there is a need for a harmonized collaborative bottom-up methodology
3. According to CLEPA, the methodology shall be:
 - a. Component centred, instead of material-mass centred
 - b. Bottom-up with a collective & cumulative supply chain approach
 - c. Enable competition as CO₂e reduction driver
 - d. Reflecting responsibilities for all intermediate product within the supply chain
4. More details on the CLEPA position on this matter can be found in [A-LCA-01-15-Rev.1](#)

Annex II

International Motorcycle Manufacturers Association (IMMA) perspective toward Carbon Neutrality by 2050

Please find below the suggestions by IMMA, to adequately consider Powered Two Wheelers (PTWs) in the ITC climate change strategy and biennial report. This involves considering the regional diversities in the fleets of vehicles, different needs and preferences of the users as well as different vehicle purposes.

A combination of diverse approaches towards decarbonization is required to reach the global goals towards climate neutrality. This will foster innovation, healthy competition and empower the market to decide on the most successful solution for each application. IMMA suggests the following three pillars:

1. Promote PTW mobility as PTWs are light, lean and efficient

Motorcycling is one of the most common and popular modes of transport around the world, thanks to its affordability and flexibility. PTWs provide a practical mobility solution on their own and an efficient alternative solution to underserved public transport, within urban, peri urban and rural settings. In crisis situations, PTWs are means to provide emergency response services and disaster relief in hard-to-access areas. A modern, well maintained and properly operated PTW has a relatively low environmental footprint. Improved traffic management and infrastructure can further enhance their environmental benefits.

2. Adopt the Multi-Pathway Approach

The Multi-Pathway approach enables choosing the most adequate solution for each use case and place and take into account the specificities of each jurisdiction.

The decarbonisation of PTWs requires a technology-neutral approach encouraging the promotion of low-carbon fuels for internal combustion engines (ICE) as well as the advancement of electrification for short-range urban mobility PTWs. PTW decarbonization policy requires separate attention from the policies for cars, to consider adequately the specifics of PTWs such as relatively small size, low weight, and limited space. Also, some alternative fuel and design modifications may induce constraints and have significant impact on handling, braking and manoeuvrability.

Combinations of technologies may also be envisioned e.g. hybrid powertrain configurations. WP.29 activities in this direction continue among others in the Informal Working Group EPPR on the harmonization of global environmental performance requirements under GRPE.

3. Facilitate and create the enabling conditions for decarbonization.

Carbon neutral road transport depends on commitment from stakeholders from diverse sectors and their successful cooperation on issues as energy sourcing, infrastructure, and distribution network. Efforts at global, regional, national and local levels are needed:

For example, biofuels are readily available, and their promotion and application largely depend on socioeconomic aspects and availability of natural resources. With adequate government support, biofuels can make a significant contribution to decarbonization on the short and medium term.

Synthetic fuels such as e-Fuels are not yet available in sufficient quantities due to their high production cost and the currently limited availability of renewable energy sources. Investments in R&D and support from global institutions and governments are needed to make these fuels applicable, affordable and available for PTWs.

Institutional and government support is also needed to support EV affordability, develop technology to reduce battery size and increase their range.

Urban policies will be highly influential on progress towards decarbonization. PTW-inclusive urban traffic plans are an essential component.

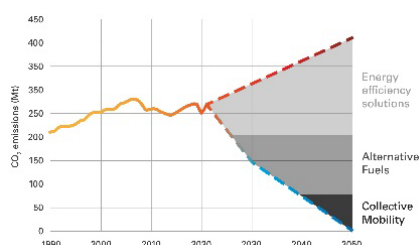
IMMA and its members continue to be engaged in the world Forum for Harmonization of Vehicle Regulations (WP.29), the Global Forum for Road Traffic Safety (WP.1) and other groups or activities under the Inland Transport Committee, as necessary or requested.

Annex III

International Road Transport Union (IRU) Green Compact project

A realistic and cost-effective pathway to fully decarbonise the commercial road transport industry.

1. The commercial road transport industry, providing an essential service to economies and communities, is committed to fully decarbonise the sector by 2050.
2. Representing a responsible industry, IRU and its members have adopted a clear roadmap to decarbonise the industry as outlined in the IRU Green Compact.
3. The Green Compact research, tests and scales up realistic operational solutions to decarbonise commercial road transport as effectively as possible, while continuing to meet demand for passenger and goods transport services.
4. With five pillars, the Green Compact covers a comprehensive set of actions with a holistic approach, factoring in growing transport demand, regional flexibility, and energy availability.



5. There is no one single solution to reduce CO2 emissions in road transport.

Each Green Compact pillar demonstrates varying approaches and actions depending on the economic and social development of a country, how primary energy is produced, the availability of alternative fuels and the structure of the road transport sector (size of companies, financial standing, geography), but all play a crucial role in collectively achieving net zero emissions.

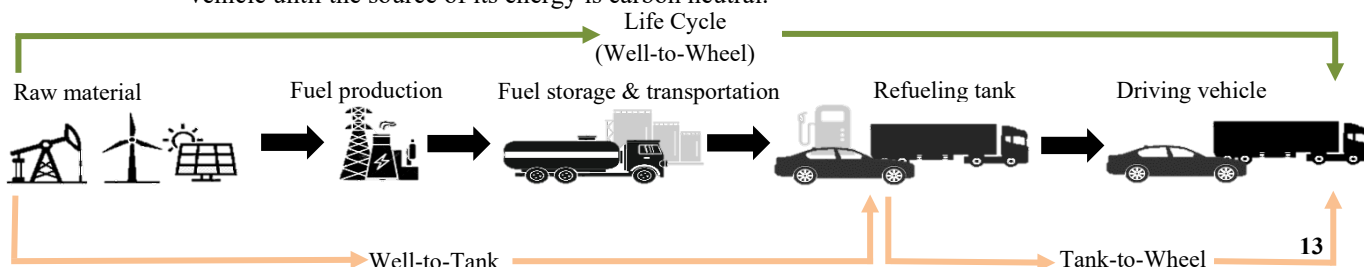
6. One similarity for all regions and economies is a "duplex" approach: to both drive efficiency wins and continue to develop alternative fuel availability and infrastructure in parallel. This approach results in the most cost effective and efficient way to reach carbon neutrality by 2050.
 - a. Efficiency wins: Making logistics, vehicles, and drivers more efficient, using proven technology and approaches, has been demonstrated to reduce CO2 emissions from commercial road transport by approximately 50%.

- b. Alternative fuels: New alternative fuels are also needed. The wide range of transport needs across the globe means that all types of alternative fuels are needed during the transition to 2050, including electric, hydrogen and carbon neutral fuels for internal combustion engines such as bio and e-fuels.

A technology-neutral approach is essential. Business incentives are required to expedite the penetration of clean technologies, and mitigate high upfront costs for new investments, especially by small and medium sized transport operators. Adequate alternative fuel infrastructure needs to be effectively deployed.

- c. Collective mobility: CO2 emission reductions from efficiency wins and alternative fuels need to be bolstered by the switch from private to collective transport, for example to buses and coaches.

7. Tracking CO2 emission use over time is essential to deliver carbon neutrality. This must be done using the well-to-wheel approach. A zero-emission vehicle is not truly a zero-emission vehicle until the source of its energy is carbon neutral.



8. Global coordination and open-minded policymakers with a strong disruptive political will to scale up existing pragmatic decarbonisation solutions are needed. The duplex approach necessitates action on all fronts now, both efficiency wins and alternative fuel development.

Annex IV

International Organization of Automobile Manufacturers (OICA) contribution to Carbon Neutrality by 2050.

OICA wishes to contribute with some cues collected among members of our association, to the definition of the note on “Inputs and feedback from GRPE/WP.29 to the outline of the ITC climate change strategy and to the biennial report”.

1. We would like to propose some priorities/prerequisites required for electrification and alternative propulsion systems, and to strengthen the environmental benefits from them.

We would recommend ITC to pursue:

- a. the deployment of public and private infrastructure in line with EV adoption;
- b. achieve interoperability to ensure seamless customer charging experience based on common standards;
- c. bi-directional charging, especially for LDV:
 - (i) Will enable a more effective power distribution grid with lower peak loads
 - (ii) Will enable a higher energy mix of renewable energy sources
 - (iii) Harmonized regulations and standards, based on clearly identified use and business cases, to ensure electric vehicle grid integration;
- d. the use of all possible alternative carbon neutral fuels, especially for Heavy Duty vehicles, able to reduce the carbon footprint, also looking at carbon neutral Hydrogen and relative development of suitable infrastructures;
- e. the promotion of alternative mobility solutions, establishing effective communication between different working groups, essential to develop sustainable transport systems, and to achieve significant GHG emission reductions.

OICA also recommends emphasizing the work done in the Automotive-LCA working group under UNECE: Overarching international guidelines for vehicle LCA methodology are urgently needed and any further national approaches not in line with this UNECE activity should be avoided. For effective decarbonization of automotive products, cooperation along the whole value chain is essential and requires an internationally harmonized and practical LCA methodology, including a definition of the responsibility of each stakeholder of an automotive product life-cycle stage.

2. Another reflection, from OICA point of view, is linked to the topic of the Heavy-Duty Fuel Economy.

We have made some attempts in the past to draw the attention of the GRPE to the importance of having harmonized procedures in the framework of the UNECE, proposing the creation of an IWG dedicated to the development of a GTR related to measurement methodologies.

Unfortunately, at that time, none of the contracting parties showed interest in becoming the main sponsor of this activity, so the topic, despite still being on the GRPE agenda, remained without a concrete outlet.

It is hoped that input to the ITC on the need for harmonization of standards for HD fuel consumption will improve this situation and facilitate intergovernmental harmonization activities.

3. A last point, addressing the topic of trying to achieve more efficient type approval procedures.

As OICA we see that there are pretty much always new additional tests added but only very rarely is something removed, even where the tests are pretty much outdated.

The broader application of alternative procedures (as for example we have in UN-R154 Level 1a) could make type approval more efficient and by doing so reduce GHG emissions during the type approval process.

More information can be found in OICA position paper on carbon neutrality by 2050:
<https://www.oica.net/wp-content/uploads/OICA-Position-Paper-on-Carbon-Neutrality-by-2050-NOV2022.pdf>
