



Technology Executive Committee

24 August 2022

Twenty-fifth meeting

In-person meeting, 6–8 September and 9 September 2022 (TEC-CTCN Joint session)

Draft key messages and recommendations to Parties on technologies for sustainable road mobility

Cover note

I. Background

1. As per activity 3 of the thematic area of enabling environment and capacity-building of its workplan for 2019–2022, the Technology Executive Committee (TEC) is to identify challenges and opportunities to strengthen enabling environments, including favourable market conditions, to enhance replicability and scalability of technologies for sustainable transport, including fostering public and private sector involvement.
2. At TEC 24, the TEC considered a background paper on decarbonization technologies for sustainable road mobility.
3. On the basis of this paper, the task force prepared draft key messages and recommendations for consideration by COP 27 and CMA 4.
4. Once agreed by the TEC, the key messages and recommendations will be included in the joint annual report of the TEC and the Climate Technology Centre and Network for 2022.

II. Scope of the note

5. The annex to this note contains the draft key messages and recommendations of the TEC on technologies for sustainable road mobility for consideration at COP 27 and CMA 4.

III. Expected action by the Technology Executive Committee

6. The TEC will be invited to consider and agree on these key messages and recommendations.

Annex

Draft key messages and recommendations on technologies for sustainable road mobility

1. The TEC offers key insights from its work on the development, diffusion and impacts of advanced decarbonization technologies for road transport, which includes PEVs, hydrogen-powered fuel-cell electric vehicles, advanced liquid biofuels, shared mobility modes and full vehicle automation:

- (a) PEVs offer the highest technology readiness and low-carbon potential for light-duty vehicles, as well as some medium- and heavy-duty applications, and they may also offer a strong opportunity for two- and three-wheeler applications in some developing countries;
- (b) Hydrogen and advanced biofuels have lower technology readiness and higher adoption barriers than electrification and are not expected to play as large a role in deep decarbonization of road transportation;
- (c) ZEV deployment may need to be aligned with support for low-carbon fuels, namely zero-emission electricity, green or blue hydrogen, and/or advanced biofuels. More research and policy efforts are needed to improve the sustainability impacts of ZEV manufacturing, operation, and disposal, including extraction of metals for advanced batteries and battery end-of-life reuse or recycling, inclusion of oxidation catalyst on cell fuels and green hydrogen production, dramatically increase carbon capture on blue hydrogen, and ensure that biofuels are not a source of deforestation;
- (d) Shared mobility is likely to play a small role in deep decarbonization and may be more effective through increased use of pooling and coordination to improve public transit service and uptake;
- (e) Full vehicle automation involves a highly uncertain set of technologies that could increase or decrease GHG emissions due to efficiency gains being offset by deadheading, more driving and other rebound effects;

2. The TEC recommends that the COP and the CMA invite Parties and relevant stakeholders seeking to achieve deep decarbonization through accelerating the uptake of technologies for sustainable road mobility to consider:

- (a) Planning a mix of policies that can offer different and complementary benefits to induce further GHG emission reductions while improving or achieving policy cost-effectiveness or efficiency, equity, political acceptability, and/or transformative signal, and addressing technical and social barriers;
- (b) Establishing ZEV sales standards or requirements that can channel research and development and innovation activities towards ZEV technologies;
- (c) Considering complementary policies, namely a low-carbon fuel standard, carbon or road pricing, support for charging and fuelling stations, building standards that require charging infrastructure, financial incentives for infrastructure installation, and the phase down of subsidies and exemptions that benefit fossil powered technologies and their associated emissions;
- (d) Consider complementary policies that reduce demand for transportation or private driving, such as public transportation, urban planning and teleworking;
- (e) Guiding low-carbon innovation with direct research and development support to channel domestic innovation activities, including the use of public–private partnerships;
- (f) Ensuring institutional capacity, which may include developing research-oriented institutions that track low-carbon technologies, including progress regarding social and technical barriers, as well as lessons learned for the design of a climate policy mix.

Abbreviations and acronyms

CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
GHG	greenhouse gas
PEV	plug-in electric vehicle
TEC	Technology Executive Committee
ZEV	zero-emission vehicle
