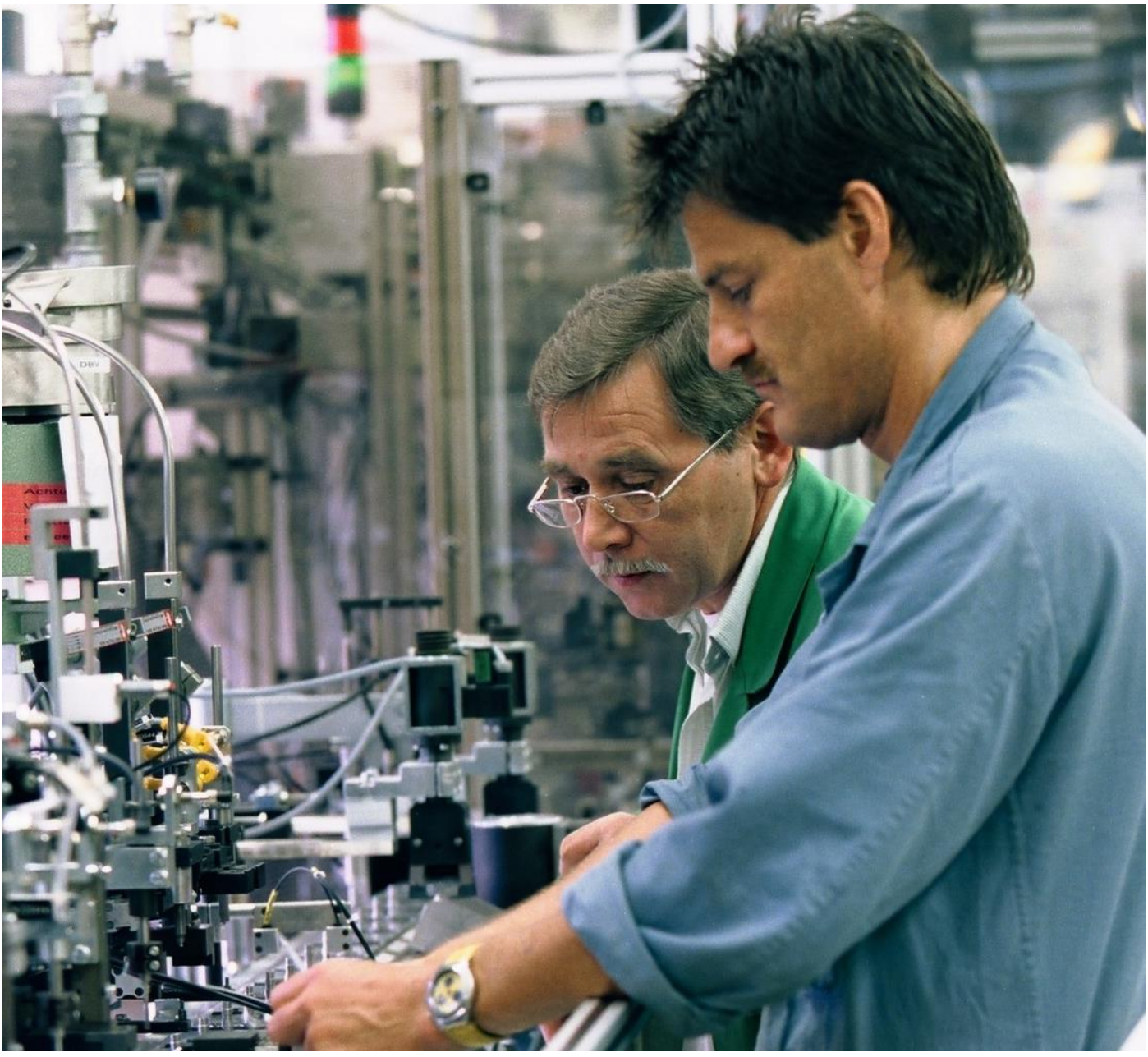
CLEPA
European Association of Automotive Suppliers

CLEPA Position Paper on post-2020 CO2-emission reduction targets in Europe

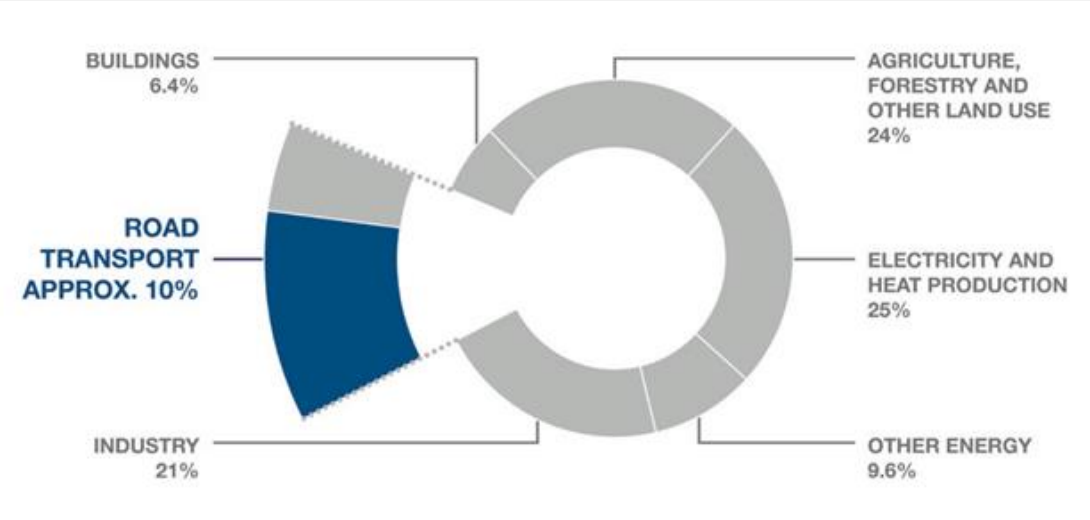
Low-carbon mobility for the future



Contribution of the transportation sector

Greenhouse gas reductions of the required magnitude (several GtCO2 per year) can only be achieved if every economic sector contributes. A look at the transportation sector shows that it accounts for approximately 14 percent of the global anthropogenic greenhouse gas emissions.

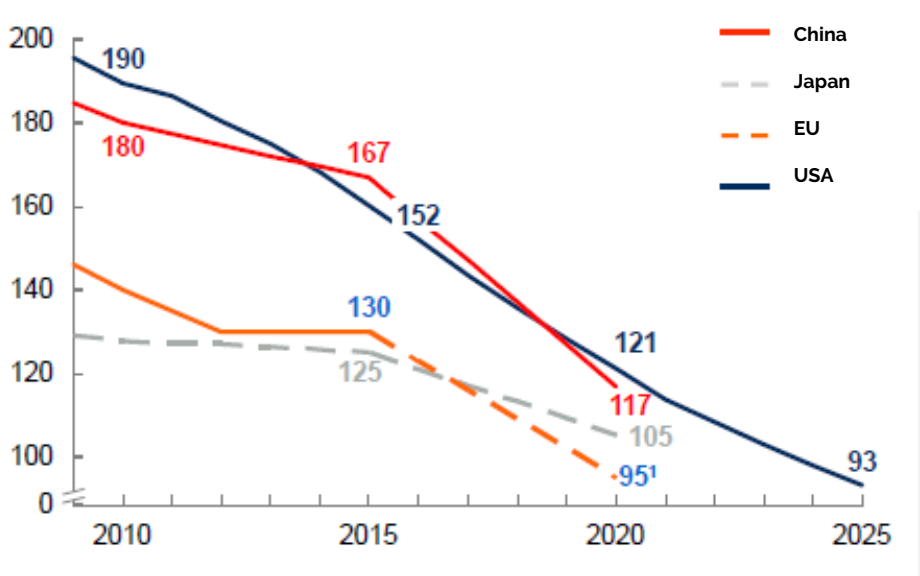
Of this, approximately 10 percent is attributed to emissions from the road transportation sector (including commercial vehicles and passenger cars). Owing to rising production figures, the transportation sector is expected to continue playing a significant role in achieving targets over the next decade.



Sources: IPCC, 2014; Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, R.K Pachauri and L.A Meyer (eds.). IPCC, Geneva, Switzerland, 151pp. page 47

Planned emission standards in selected regions

g CO2/Km normalised to New European Driving Cycle



Source: EGVI Impact Assessment of the European Green Cars Initiative

Content

Executive summary

- European automotive component suppliers lead the world in technologies for efficient, low-emissions vehicles, offering diverse technologies and solutions to reduce CO2 emissions;

- A large variety of smart, safe and sustainable technology solutions will be required to meet society's ever more diverse mobility needs;

- Technology-neutrality remains a key necessity in CO2-reduction policy, opening up several technological pathways to low carbon mobility;

- Electrification offers an important route to decarbonisation while at the same time the further improvement of the internal combustion engine remains an indispensable path, to achieve the 'Paris' climate change mitigation goals;

- Advanced alternative fuels as well as off-cycle technologies offer additional significant CO2-reduction potential that should be unlocked by supportive policy;

- With available technologies, compared to 2020 targets, an approximate 20% to 25% reduction in CO2 per kilometre can be reached by 2030;

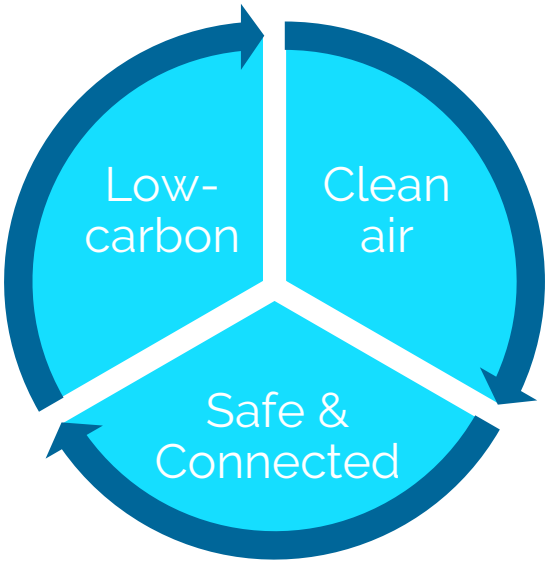
- Building on Europe's industrial strength, policy makers are tasked to promote low-carbon mobility in a sustainable and competitive way – meeting ambitious environmental targets, strengthening EU technology leadership and underpinning growth and employment in Europe.

Setting the scene

Challenges and Opportunities

EU component manufacturers lead the world in technologies for efficient, low-emissions light duty vehicles, sustaining their global competitiveness and underpinning automotive employment and manufacturing in Europe. Building on the achievements in recent years, realistic and achievable targets now need to be set for the next decade to 2030, to help meet the Paris' climate change reduction objectives. The European Commission is expected to publish a proposal for CO2-emissions legislation for light duty vehicles by the end of 2017.

The task ahead is complex and challenging, but presents many opportunities as well. Induced by the megatrends defining todays and tomorrow's transport and mobility, **automotive suppliers are accelerating innovation** in clean and efficient vehicles, passive and active safety, and connected and automated driving. These **trends must be addressed in parallel**, both by industry and by legislators, to obtain the best possible results for environment, society and industry alike. For example, fostering connectivity also benefits the environment due to an improved traffic flow and more efficient use of vehicles.

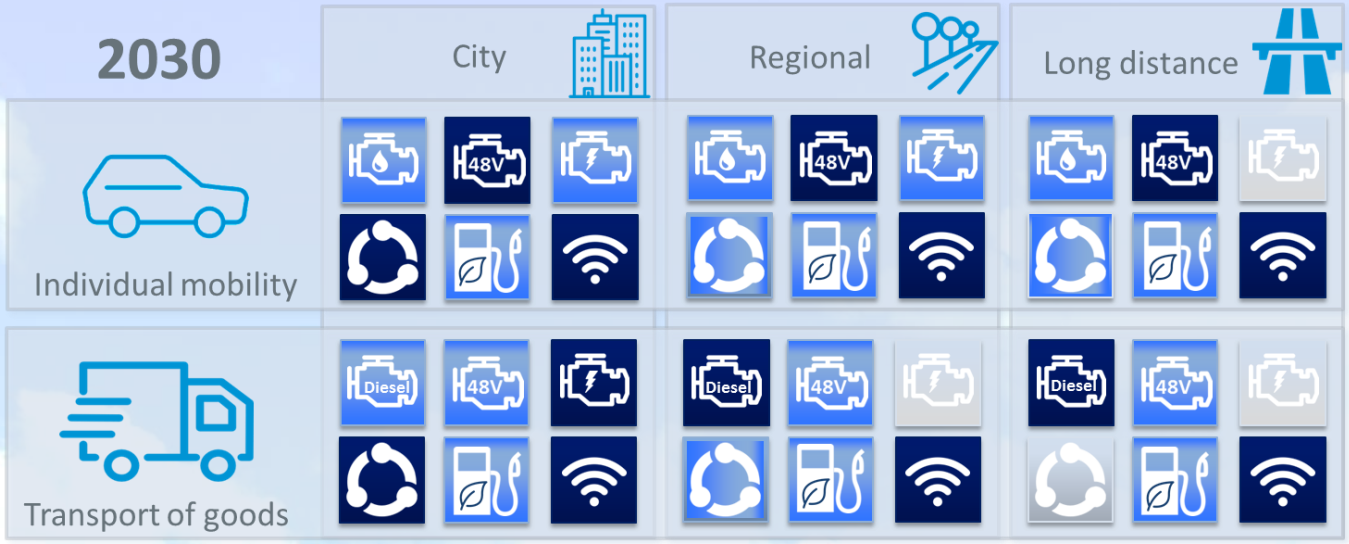


EU Regulation should promote

1) Transparent, technology-neutral target setting
2) Harmonized and coordinated measures that take the interacting megatrends into account
3) Industrial policy incorporating environmental and economic targets, providing planning certainty
4) Investments in both infrastructure and Research & Development

Such new, more system-oriented approach demands new strategies from industry and an integrated and **forward-looking policy approach** from legislators. For industry, the challenge lies in further developing technological and service oriented solutions for all diverse mobility demands. Regulators, in turn, must coordinate their actions more than ever, at European, national, regional as well as at city level. As stated by the Commission's roadmap towards decarbonising transport: "No individual measure will achieve transport decarbonisation on its own". It requires an **environmental strategy that takes all future mobility demands into account**, benefitting from innovative mobility solutions and further efficiency gains in the conventional powertrian as well as the increasing deployment of electrification. The shared objective is to significantly reduce greenhouse gas emissions.

A diverse market asks for a multitude of solutions



Legend

- Advanced Internal Combustion Engine
- Advanced Internal Combustion Engine + 48V + Hybrid Electric Vehicles
- Plug-in/Electric Vehicles
- New fuels
- Connectivity
- Multi-mode mobility

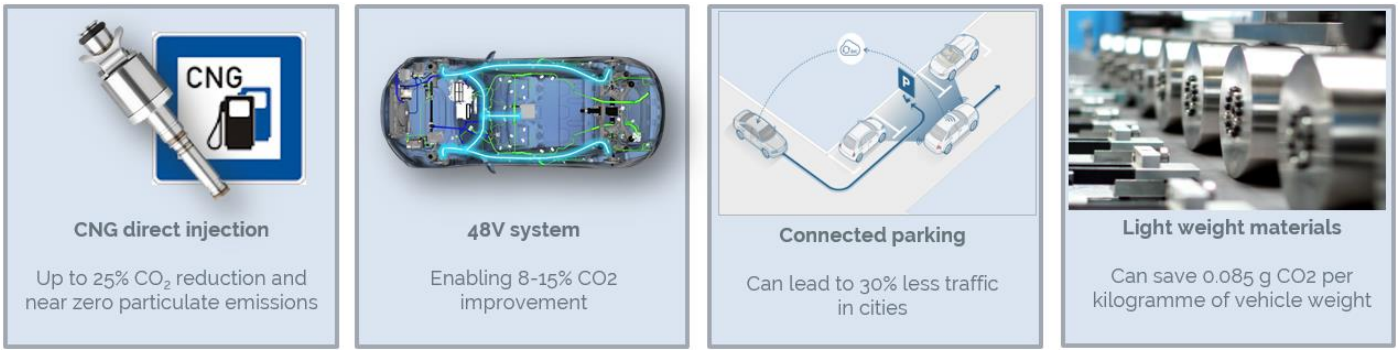
Indicative projection of the low-carbon mobility cluster by 2030

Colour code

- High demand
- Medium demand
- Lower demand

1. Technological variety demands
Technology Neutrality

The general expectation is that in the transportation sector fossil-based fuels will dominate the energy pool for road transport till 2030, and that the road transport energy supply mix will be composed of fossil-based fuels, natural gas, renewable liquid fuels and electricity also beyond that frame of time as well



.

A **large variety of technology solutions** will be required to meet the ever more diverse mobility needs in a safe, sustainable and smart way. Electrification is one clear trend that automotive suppliers embrace. At the same time, efficient and clean combustion engines continue to be an indispensable lever to reduce CO2 emissions from transport. Additional technologies have a role to play as well, such as thermal management, light-weight solutions and advanced alternative fuels.

The integrated development and progress in safe, sustainable and smart mobility demonstrate that **electrification and further improvements in the internal combustion engine complement each other,** especially in combination with advanced biofuels, e-fuels and other advanced energy sources. The vast variety in technology solutions offers new potential to address individual mobility demands, increasing consumer choice and giving the European industry new innovative opportunities.

For years, **technology-neutrality has successfully been the guiding principle** for emission legislation in the transport sector. Political institutions set targets but count on industry to identify and implement appropriate measures. Such an approach creates a framework that fosters innovation, in which companies and technologies compete for the best solutions. The principle of technology-neutrality is key for the post-2020 CO_2 legislation as well.

Technology-neutrality supports maintaining European technology leadership, **sustaining the global competitiveness of the automotive supply industry and the European automotive manufacturing and employment base.** It leverages Europe's industrial strength while fulfilling the environmental goal of efficiently and increasingly decarbonising the transport sector.

Hybridisation & Electrification (Passenger Cars)

	Mild Hybrid	Strong Hybrid	Plug-in Hybrid	REEV	BEV	FCEV
Electric Power	5 – 20 kW	30 – 100 kW	40- 140 kW	60 – 160 kW	60- 300 kW	100 – 150 kW
	Brake energy recuperation	Limited electric driving range	50-100 km electric driving w/o restrictions	Electric driving with Range Extender	Zero emission driving	Zero emission driving
CO2 Reduction (Tank to Wheel)	10-15%	15-25%	40-60%*	50-90%*	100%	100%

*depending on battery capacity, operation strategy and charging profile

2. Electrification means Diversification

Electrification will play a crucial role in the mobility of tomorrow. A broad range of electrified propulsion technologies (Battery Electric Vehicles, Plug-in Hybrid Electric Vehicles, and Hybrid Electric Vehicles) is being introduced and constantly improved by the European automotive industry, with the goal to offer the best solutions to consumers and citizens, tailored to their mobility needs and circumstances.

Electrification means, in reality, a range of options going from full-electric to hybrid to mild-hybrid in various forms. A person living in an urban area will require a different mobility system than a suburban commuter or than goods transported over long distances. A person might decide to use a shared electric vehicle to go to work or use an e-cargo bike to transport groceries home, benefitting from innovative services providers and increasing deployment of electrification. For longer-distance travel or transportation, however, further efficiency in the conventional powertrain remains the cornerstone. **Key to the contribution of electrification is the market take-up, which in turn depends on technology cost, utility and convenience, infrastructure and the willingness of consumers to embrace new technology.** All these parameters indicate a greater role for electrification in the future, but the rate at which this change will happen cannot yet be predicted with any certainty.

3. Advanced internal combustion technology
Increased Efficiency

The internal combustion engine (ICE) will continue to be the dominant propulsion technology for the majority of new vehicles sold in 2030, in line with the diversity in mobility and transportation needs, energy density capacity of liquid fuels, customer preferences, the very gradual fleet-renewal rate, and the cost- and efficiency advantages of more conventional technologies.

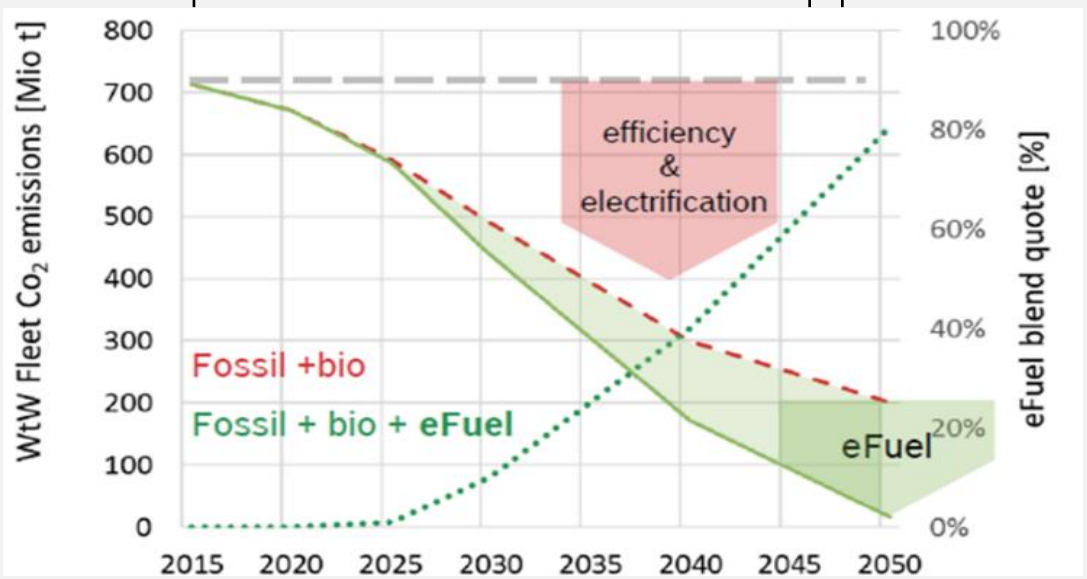
Indeed, advanced internal combustion engine technologies have a long-term future also beyond 2030, in particular in combination with advanced low carbon fuels. Further major advances in ICE efficiency will and must take place, and future legislation will have to go beyond the narrow tank-to-wheel approach.

Efficiency gains will come from improvements in the conventional powertrain as well as the combination of the ICE with various forms of electrification. In addition, CO2-reductions will be achieved by advances in heating and cooling systems, thermal management, light-weighting, aerodynamics, additional eco-innovations, and the use of advanced alternative fuels.

Measures to sustainably de-fossilise fuel will be key in the future CO2-reduction strategy as well. By 2030, EU electricity generation is projected to be only 49% renewable. Therefore, other low-carbon transport fuel solutions are needed to contribute, and a broader policy approach is required including the deployment of advanced alternative fuels.

This has the additional advantage of targeting the entire car fleet, of which the consecutive renewal is a crucial factor for lowering overall CO2 emissions in the transport sector.

Prospect of a well-to-wheel approach



4. Well-to-wheel approach

Maximising Opportunities

CLEPA is committed to measures that can make a real impact on the global climate change challenge. Therefore, towards the future, a well-to-wheel accounting for emissions is the most appropriate policy approach. Such approach allows the consideration of all contributions to greenhouse gas emissions in road transport, including from electricity generation.

A well-to-wheel approach addresses the primary parameter for climatic change: overall CO2 emissions into the atmosphere. While ensuring the clear attribution of responsibilities to the different sectors, it enables the **fair comparison of the different energy sources and the various powertrain technologies**, fully in line the principle of technology neutrality. The approach also takes into account the wide range of GHG intensities of different renewable energy sources.

Looking ahead, **a broader policy motivates the transport system to anticipate environmental benefits beyond the 2030 framework**, and thereby promotes long-term investments in renewable energy technologies: electricity, natural gas, hydrogen advanced biofuels and e-fuels.

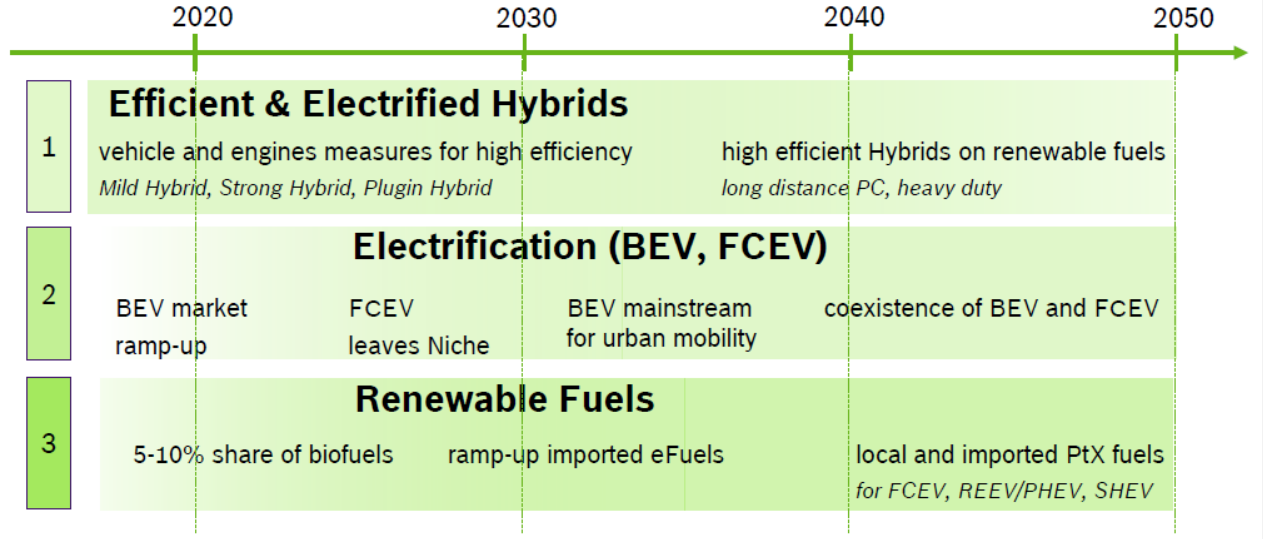
5. Matching environmental targets and Industrial Strength

No single technology solution will achieve the low-emissions targets on its own, while combinations of technology solutions will bring the necessary reductions about in a speedier, smarter and more efficient way.

By promoting a multitude of long-term pathways to low-carbon mobility in the new EU CO2 legislation, the EU will, in environmental terms, maximise the CO2-reduction potential and, in industrial terms, **leverage EU leadership in highly-efficient, advanced combustion technologies, enabling and financing the further, massive investments in alternative powertrains.**

Policy must therefore promote all available technologies, including those solutions that can contribute to reducing emissions but are at risk of being considered an unattractive investment due to the measurement methodology of the current regulatory framework. Smart regulation is evidence-based, technology-neutral and uses fair and transparent parameters to assess policy options. Smart regulation is also about furthering the objectives of the EU's economy. A supportive and enabling regulatory framework seeks to promote the competitiveness of the European industry around a high value added model that will sustainably develop and enlarge areas of European leadership or excellence.

Combination of 3 options yields nearly net zero-emissions target for transport sector by 2050



6. Promoting investment

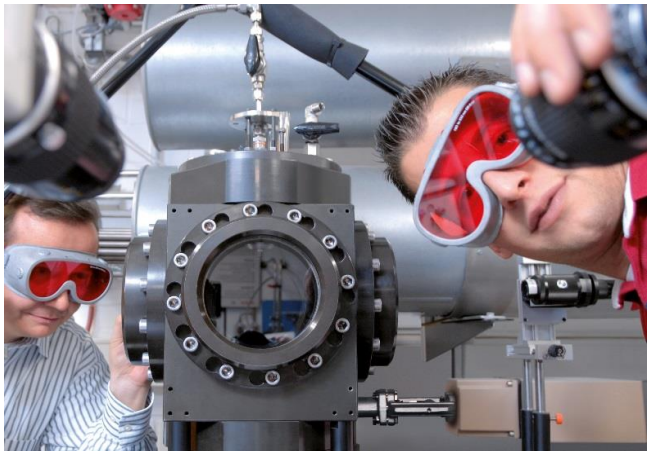
Nurturing Employment

In the years to come, the market uptake of electric vehicles will very much depend on developments in battery technologies, investments in infrastructure and the accessibility and affordability of electrified transport be it urban public transport or individual long distance travel and cargo – a clean, safe and smart transport system should cater to the different needs of the population.

CLEPA welcomes the efforts made in **building the necessary infrastructure** for the large-scale deployment of electric vehicles in public and private transport. In the spirit of technology neutrality, these efforts should be matched by equal consideration to the further efficiency gains in conventional powertrain technologies, as well as in **advancing the economic viability of advanced alternative fuels**, which both profit from an already existing infrastructure.

The development of the **next-generation of batteries will require a pre-competitive, collaborative research and development effort** of significant magnitude, and would benefit from public funding at EU level in the pre-competitive collaborative research phase.

Special attention is needed for the **transition of the automotive industry workforce** towards the next stages in mobility technology. The engine of employment in the automotive sector is based on its tremendous innovative power.



Maintaining and accelerating this innovative power must be one of the objectives for European climate policy.

Employment in the automotive sector depends on a smart and broad technology mix in the transition to sustainable mobility. Jobs related to metal processing and mechanical engineering will - to a smaller or larger extent, depending on the technology mix - make way for profiles around electric parts and assembly. In addition, 'industry 4.0' and the developments in connected and automated driving require further evolution of the automotive workforce.

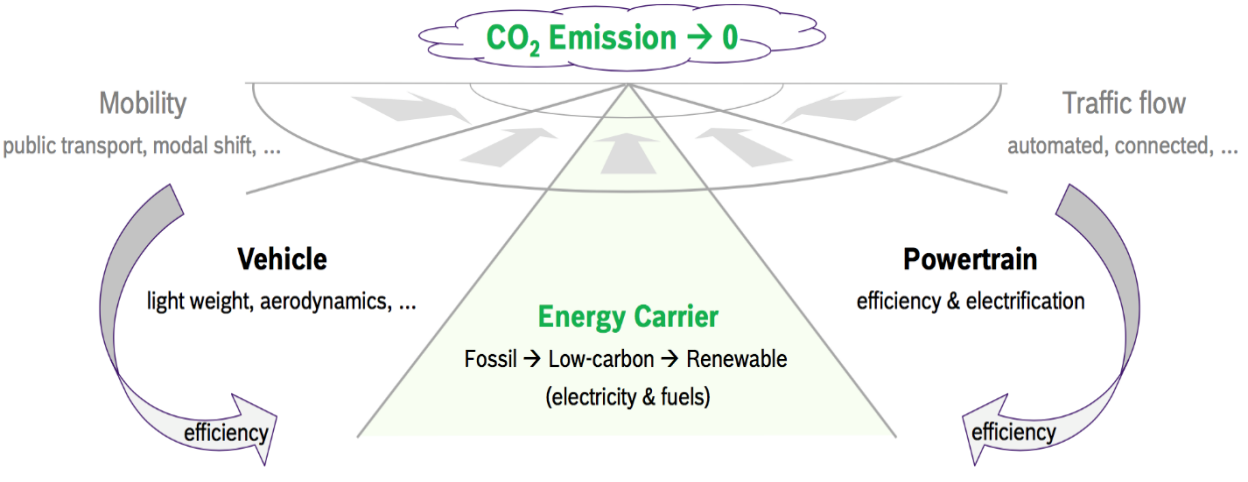
The outlook for **automotive employment impacts other parts of the economy as well**. Investment and jobs in the vehicle manufacturing sector substantially support employment and innovation in the broader manufacturing, machinery and services industries. An industrial and social success of the transition requires the long-term collaboration between industry and political institutions, not least in areas like education and research.

7. New CO_2 legislation for light-duty vehicles

CLEPA considers that with available technologies, compared to 2020 targets, an approximate 20% to 25% reduction in CO_2 per kilometre can be reached by 2030.

However, establishing the precise, new legislative objectives remains challenging, considering that future targets should be set using WLTP (the new vehicle test cycle). Furthermore, CO_2 reduction potential of the vehicle will not show a linear trend, as reductions are becoming more difficult to achieve due to physical limits, and in view of uncertainties regarding the costs and market uptake for alternative powertrains.

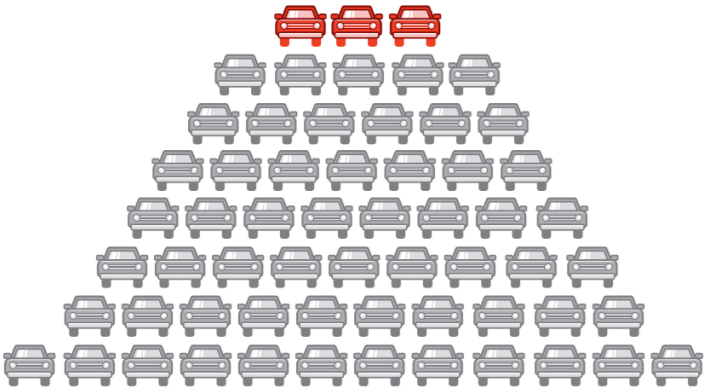
Fields of Action for CO_2 Reduction of the Transport Sector



Renewal of the existing car fleet

Equally, policy should **promote the renewal of the existing car fleet, which is a crucial element to achieve the goal of lowering CO_2 emissions** from road transport. It is important to realise that current and future CO_2 regulations apply only to new vehicles sold. Each year, only about 5% of the vehicle fleet in the EU is replaced.

Approx. **12.5 million new vehicles** are licensed in the EU each year



Altogether, **approx. 250 million cars** are licensed in the EU

Source: The Cologne Institute for Economic Research: For better CO_2 regulation of motor vehicles in Europe

Key Considerations for legislators

;

- **Technological neutrality** should remain the key principle for legislation: this will **encourage innovation** across all promising CO2-reduction paths, as well as enable a broader policy approach including alternative powertrains, as well as clean and efficient ICE technology, as well as, advanced alternative powertrains.

- The setting of new targets needs to be done in a **transparent** manner;

- g/km should remain the **metric** of choice;

- CLEPA recommends to include a gliding path in the preceding years towards the 2030 targets to create **planning and environmental certainty;**

- CLEPA supports the **WLTP introduction** as a more realistic and robust test procedure, but stresses that the conversion from NEDC must not change the ambition level or undermine the 2020 compliance. Furthermore, clarity on the NEDC – WLTP conversion is necessary before any future targets are set;

- **Eco-innovations** have a big role to play in reaching the GHG reduction ambitions as a driver of innovation, therefore they should be expanded beyond the current 7g limit;

- Eco-innovations should be **opened** for all non-cycle measures, and also be **extended** to capture the fuel saving benefits from certain technologies currently classified as "comfort" functions;

- Technologies related to **connectivity** (C2X) which can lead to better traffic management and consequent reduction in fuel consumption, should be included;

- CLEPA supports a **banking** mechanism to encourage early adoption of new technologies.

- To accelerate the uptake of new low-emission technologies, CLEPA supports the continuation of **super credits** in the 2030 legislative framework;

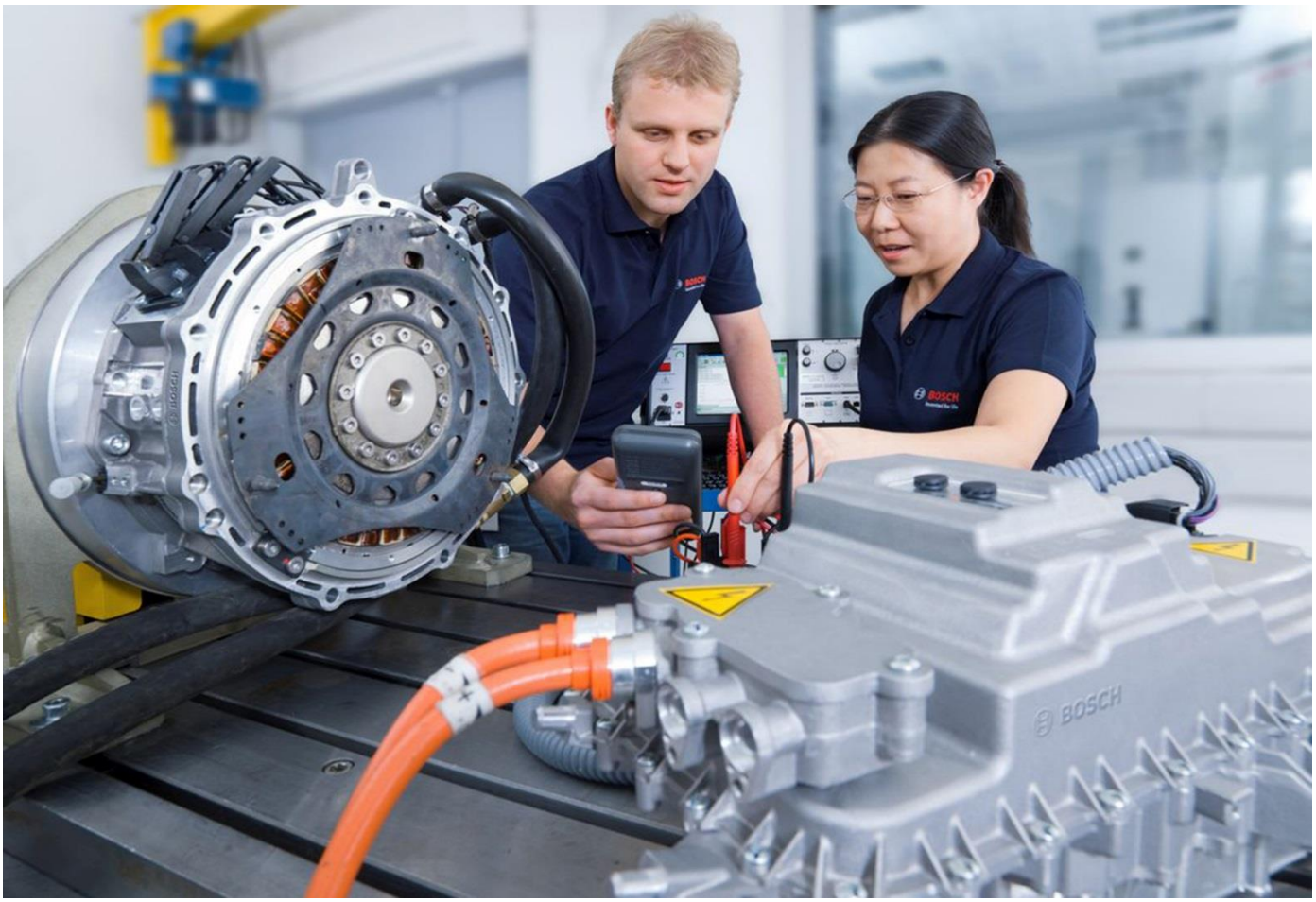
- CLEPA considers that data is currently insufficient for the application and enforcement of a complete life-cycle analysis and that, as a first next step, a well-to-wheel approach is most appropriate for measuring the **totality of CO2 emissions** into the atmosphere beyond the 2030 timeframe

Conclusions

A balanced approach and technology mix to reduce overall emissions in the transport system is a logical and responsible answer to today's and tomorrow's mobility challenges. The true challenge lies beyond 2030: to decarbonize the energy source -- electricity and fuel -- in order to ensure carbon-free mobility until 2050.

European automotive suppliers are world leaders in modern combustion engine technology and efficient auxiliary components, and actively forging world leadership in alternative powertrains as well.

Technological progress, consumer acceptance and the industrial transition take time and must be managed pro-actively as well as sustainably. The EU is tasked with making the best possible use of its manufacturing base in the global race for competitiveness and technology leadership, building on the strengths of the home-base to achieve its environmental goals and boast a strong innovative automotive manufacturing sector as well.



CLEPA
European Association of Automotive Suppliers

CLEPA is the European Association of Automotive Suppliers. Over 120 of the world's most prominent suppliers for car parts, systems and modules and 23 National trade associations and European sector associations are members of CLEPA, representing more than 3 thousand companies, employing more than 5 million people and covering all products and services within the automotive supply chain. Based in Brussels, Belgium, CLEPA is recognised as the natural discussion partner by the European Institutions, United Nations and fellow associations (ACEA, JAMA, MEMA, etc.).

- Some **12 million** people are employed in the European automotive industry
- European automotive suppliers directly employ 5 million people
- European automotive suppliers invest **€22bn** in RDI per year. They are the biggest private investor into research and innovation
- Per year, **18 million** vehicles are manufactured in Europe, contributing to the stability and growth of the European economy

Imprint

Status	June 2017
Image licenses	Bosch, Delphi, Gestamp, Mahle, Valeo
Copyright	European Association of Automotive Suppliers (CLEPA)

CLEPA
Cours Saint-Michel 30G, 1040 Brussels
www.clepa.eu
Twitter @CLEPA_eu
For more information, please contact: info@clepa.be