



European  
Automobile  
Manufacturers  
Association

# ACEA Position Paper Review of the Alternative Fuels Infrastructure Directive



June 2020

## INTRODUCTION

The European Commission has indicated on several occasions that it plans to review the Alternative Fuels Infrastructure Directive (AFID). The European Automobile Manufacturers' Association (ACEA) welcomes the fact that the Commission confirmed its intention to review the AFID in the European Green Deal that was published on 11 December 2019.

ACEA considers the upcoming AFID review as a piece of legislation that is instrumental to reaching Europe's long-term decarbonisation objectives and achieving carbon neutrality in the transport sector.

Recently, the Commission also presented its detailed assessment of the National Policy Frameworks (NPFs) that focus on the implementation of the AFID (previously known as the Directive on Alternative Fuels Infrastructure, or DAFI) by EU member states. This assessment of the NPFs provides clear confirmation that investments in alternative fuels infrastructure are lagging behind<sup>1</sup>.

The need for more intensive investment in infrastructure for alternatively-powered vehicles was also one of the key points of discussion when the 2025 and 2030 CO<sub>2</sub> targets for passenger cars, vans and heavy-duty vehicles were set back in 2019. The technical non-papers prepared by the Commission around this time, included clear projections for the (minimum) number of public charging points and re-fuelling stations needed to reach the agreed benchmark levels.

However, with the much higher (overall) ambitions of the European Green Deal in mind, there is now an even greater urgency to upgrade the infrastructure requirements for all alternative fuels in AFID with a view to making a successful transition to low- and zero-emission transport in Europe.

ACEA wants to reiterate the fact that the Commission has made an explicit link between the deployment of alternative fuels infrastructure and attaining the 2030 CO<sub>2</sub> targets for passenger cars, light commercial vehicles and heavy-duty vehicles (HDVs). In this context, it must be stressed that high-power charging points and hydrogen re-fuelling stations are lacking in particular today. Indeed, making the necessary infrastructure available is critical to improving consumer convenience in the case of passenger cars and to allowing for smooth operational use of HDVs by freight operators.

Reaching any CO<sub>2</sub> target beyond 2020 will greatly depend on the availability of infrastructure for alternatively-powered vehicles. That is why ACEA urges the European Commission to fast-track the AFID review, it should happen as soon as possible, and to focus on swift implementation.

To that end, this ACEA position paper makes 10 key recommendations for the review of the Alternative Fuels Infrastructure Directive (on pages 4-12).

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<sup>1</sup> <https://ec.europa.eu/transport/sites/transport/files/legislation/swd20190029.pdf>

## IMPLEMENTATION TO DATE: ACEA'S PERSPECTIVE

1. ACEA is a long-time and active advocate of the necessity of rolling out charging and re-fuelling infrastructure for alternatively-powered vehicles in order to promote the market uptake of such vehicles – especially given that the current lack of infrastructure is one of the major hurdles to widespread consumer acceptance.
2. However, following the Commission's assessment of the NPFs, ACEA is very concerned about the current state of investments in alternative fuels infrastructure by member states.
  - Twenty member states have failed to define alternative fuels infrastructure targets for all mandatory fuels/modes.
  - Moreover, the National Policy Frameworks are not coherent at EU level and intervention by the EU is therefore needed.
  - The national targets are definitely not corresponding to the infrastructure estimates that the Commission made for the 2025 and 2030 CO<sub>2</sub> targets and benchmarks. This is the case for both passenger cars and trucks.
  - Even some portions of the 'core network' of the Trans-European Transport Network (TEN-T) will continue to lack appropriate infrastructure looking at the NPFs.
  - In principle, none of the national plans nor any Commission initiatives consider the need for proper maintenance of charging and re-fuelling points for long-term use.
3. With respect to the current CO<sub>2</sub> legislation for passenger cars, there is a major discrepancy between the estimated need for re-fuelling and charging infrastructure in the EU and the benchmarks that were set for zero- and low-emission vehicles (2025: 15% benchmark for cars and 2% credit benchmark for HDVs; 2030: 35% benchmark for cars).
  - According to the Commission's own calculations<sup>2</sup>, roughly 2.8 million publicly-available charging points will be needed to reach the 35% benchmark in 2030.
  - This represents an increase by a factor of around 15 compared to the 165,000 charging points currently available across the EU<sup>3</sup>.
  - Similar findings were confirmed by a recent Transport & Environment study<sup>4</sup>.
4. The critical lack of available infrastructure is clearly demonstrated by the legislative CO<sub>2</sub> requirements for heavy-duty vehicles. HDVs cannot use the same infrastructure as cars because of their significantly higher power demand and different charging conditions. Moreover, standards for high-power charging by trucks (DC above 500kW) do not exist yet and still have to be developed.
  - Specific, binding targets for the deployment of infrastructure suitable for heavy-duty vehicles, buses and coaches must be included in the EU's Alternative Fuels

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<sup>2</sup> [https://ec.europa.eu/clima/sites/clima/files/transport/vehicles/docs/co2\\_cars\\_vans\\_non\\_paper\\_technical\\_update\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/transport/vehicles/docs/co2_cars_vans_non_paper_technical_update_en.pdf)

<sup>3</sup> Based on the EAFO statistics available at <https://www.eafo.eu/alternative-fuels/overview>.

<sup>4</sup> <https://www.transportenvironment.org/sites/te/files/publications/01%202020%20Draft%20TE%20Infrastructure%20Report%20Final.pdf>

- Infrastructure Directive.
- It is essential that sufficient truck- and bus-specific electric charging points, and re-fuelling stations for hydrogen (compressed and liquified) and gas (CNG/LNG), are made available across the EU at the latest by 2025, and that their number increases significantly by 2030.
  - If meaningful supportive policy measures are put in place and the necessary charging and re-fuelling infrastructure is deployed, a total fleet of approximately 200,000 battery-electric trucks (>3.5t GVW) will be in operation in the EU by 2030.
  - All of these will require, mostly private, depot charging stations as well as – depending on their mission profiles – public and/or semi-public charging points.
  - High-power charging of commercial vehicles (HPCCV) is an important enabler and a standard must be developed, and the first chargers built, well before 2025.
  - Already by 2025, approximately 24,000 charging points with DC<100 kW capacity (4,000 publicly-accessible ones plus 20,000 depot stations), 11,000 stations with DC350 kW and 2,000 charging points with DC>500 kW will be required.
  - By 2030, these figures will have to increase significantly to roughly 250,000 DC<100 kW charging points (of which 200,000 depot), 20,000 publicly-accessible points (DC 350 kW) and 20,000 public fast-charging points (DC> 500 kW).
  - These infrastructure investments will require significant financial support. Transport operators in particular should be incentivised to invest early in private and semi-publicly accessible depot charging stations.
5. The recently adopted review of the Clean Vehicles Directive (CVD) also requires clear commitments from member states with regard to the public procurement of alternatively-powered vehicles across different segments. However, it will not be possible to reach those targets if the appropriate infrastructure is not put in place. In that respect, ACEA would like to highlight the requirements for buses for example, ie 50% of the target should be met by zero-emission buses. Indeed, bus-specific charging points and re-fuelling stations will be absolutely essential if member states want to meet the CVD requirements.
6. Automobile manufacturers would like to stress the importance of making investments in smart grids (ie electricity supply networks) as a prerequisite for making smart charging of vehicles possible and helping to improve grid management. This was also clearly requested in the joint declaration issued by ACEA, Eurelectric and Transport & Environment on 4 September 2019<sup>5</sup>.
7. Any initiative by the Commission with respect to infrastructure for alternatively-powered vehicles should also seek to support the rollout of safe and secure parking areas for light and heavy-duty commercial vehicles. Large roadside truck parking stations all over Europe, as

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<sup>5</sup> [https://www.acea.be/uploads/press\\_releases\\_files/Joint\\_call\\_to\\_action-ACEA\\_Eurelectric\\_TE.pdf](https://www.acea.be/uploads/press_releases_files/Joint_call_to_action-ACEA_Eurelectric_TE.pdf)

well as freight terminals and workshops, need to be adapted to accommodate an increased volume of alternatively-powered vehicles in the future.

## MOVING AHEAD, IMPLEMENTATION OF THE GREEN DEAL

An ambitious review of the Alternative Fuels Infrastructure Directive, followed by swift and thorough implementation by the member states, is a vital condition for meeting the CO<sub>2</sub> targets set by the current legislation. ACEA's member companies have demonstrated that they are bringing alternatively-powered vehicles to the market, but the necessary infrastructure is still missing. The rollout of these charging points and re-fuelling stations is essential to enabling the shift to carbon-neutral mobility and to ensuring consumer trust in new powertrain technologies.

The higher (overall) ambitions of the European Green Deal should be translated accordingly into the supportive legislative framework, including the AFID. From that perspective, the proposed AFID requirements for the number of charging and re-fuelling points should be revised (upwards) in line with the (higher) CO<sub>2</sub> reductions expected from the transport sector. Alternatively, the AFID requirements should (at a minimum) reflect the currently valid CO<sub>2</sub> targets for cars, vans and HDVs, but also include a review clause that specifies that those requirements shall be revised once new ambition levels are agreed, eg under the Green Deal or as part of the CO<sub>2</sub> regulation review.

Increased, streamlined funding from EU sources would be necessary to reach the 1 million public charging points by 2025 set out in the Green Deal; although ACEA believes that this number will not be sufficient, see point 6 on page 6. Auto makers call for quick adoption of the 'Funding call to support the deployment of public recharging and re-fuelling points as part of alternative fuel infrastructure' mentioned in the Green Deal's implementation agenda. Immediate action at EU level can bridge the gap between the need for fast deployment of a basic EU infrastructure network and the expected implementation delays at national level.

Europe's automobile manufacturers also advocate for better use of EU Structural Funds to provide incentives at member state level, as well as a roadmap to provide financial support to infrastructure investments along TEN-T routes, making EU funds available to public and private investors. All measures should aim to deliver more balanced infrastructure coverage across the whole European Union.

## 10 KEY RECOMMENDATIONS FOR THE AFID REVIEW

### 1) Strive for swift adoption and rapid implementation of the proposal

ACEA strongly urges the Commission to speed up the adoption of the legal proposal, well before the foreseen 2021 deadline. Manufacturers need this alternative fuels infrastructure as soon as possible in order to meet the regulatory targets set for 2021 and 2025. Given the (poor) level of AFID/DAFI implementation to date, the automobile industry needs policy makers to act immediately and provide sufficient support to facilitate the transition to alternative fuels.

For the time being, approximately 76% of all charging points in the EU are located in just four countries in Western Europe: France, Germany, the Netherlands and the United Kingdom. To change this unbalanced distribution, Europe's goal must be to ramp up the availability of charging and re-fuelling infrastructure in all 27 member states. Indeed, every European should be able to travel across the EU by road, allowing them to use private, semi-public and public infrastructure to charge or re-fuel their alternatively-powered vehicle.

This significant increase in infrastructure should take place ahead of the expected introduction of the latest-technology vehicles that need to meet the CO<sub>2</sub> targets, meaning that infrastructure targets should be set (at least) for 2023, 2025 and 2028 for example.

## **2) Set mandatory targets for member states**

The European Commission should ensure that the review of the Alternative Fuels Infrastructure Directive goes back to original proposal from 2013, which included targets for national governments. Indeed, mandatory targets for all EU member states should be re-considered as well as a legal act in the form of a regulation. The AFID requirements should also specify the maximum (allowed) distance between charging points/re-fuelling stations based on the total number of points/stations (allowing for exceptions, similar to the ELV directive), taking into account the specificities of urban and extra-urban areas (such as motorways).

Clear enforcement measures must be established by the European Commission to ensure proper implementation of the national plans. As a key prerequisite for enforcement, monitoring at EU level of the number and availability of charging/re-fuelling points must be improved, and a clear timeline for the implementation milestones of member states should be put in place, respecting the subsidiarity principle of course.

The National Policy Frameworks should also take 'soft measures' into consideration, such as pragmatic approval procedures for building permits, fiscal (purchase) incentives for alternatively-powered vehicles at the national level and incentives for installing wall outlets in private and semi-private places.

## **3) Include infrastructure for all alternative fuels in investment plans**

The Commission should continue to respect the technology neutrality principle in all policy areas. The further decarbonisation of road transport through the use of lower-carbon liquid fuels and alternative fuels will require different fuel options for different vehicle segments. No solution should be excluded and they should be based on open EU standards.

## **4) Include all vehicle segments in the AFID**

ACEA is worried by the fact that key (legislative) infrastructure requirements related to heavy-duty vehicles, buses and coaches are currently missing. The DAFI review has to be used to set specific

infrastructure targets for commercial vehicles, in addition to those for passenger cars. The existing directive does not include any truck-specific targets for instance, except for LNG-related ones. Europe has to make sure that a sufficiently dense truck- and bus-specific infrastructure network – consisting of LNG, CNG and hydrogen (H<sub>2</sub>) stations as well as electric charging points – is made available across the EU by the middle of the next decade (at the latest). Any standardisation processes required for this rollout will have to commence immediately.

## 5) Guarantee the 'right to plug'

The final text of the EU Energy Performance of Buildings Directive represents a missed opportunity for making it easier/more user-friendly to charge electrically-chargeable vehicles in existing buildings, ACEA believes. This piece of legislation aims to complement the AFID, but instead has set weak requirements for the installation of charging points in residential areas.

Setting provisions for 'pre-cabling' of buildings to allow for fast and easy installation of charging points is one thing, but this also requires a strong push by both member states and local authorities. Improved and faster infrastructure planning and granting of (building) permits are essential in meeting customer demand. Indeed, this is much needed in order to create more favourable conditions for charging vehicles in both new and existing residential and public buildings. In parallel, member states should ensure that the infrastructure made available for alternatively-powered vehicles remains reliable and is properly maintained – this should also be monitored at EU level.

## 6) Increase the number of charging points and re-fuelling stations

Based on the regulatory targets set for passenger cars, vans and heavy-duty vehicles by the EU's current CO<sub>2</sub> legislation, the charging points and re-fuelling stations specified below (sections 6a and 6b) are seen as the absolute minimum requirements to be included in the AFID review by the Commission.

### 6a) For passenger cars and vans

- ACEA supports:
  - The original calculation method used by the Commission in the proposal as from 2013, especially with respect to the amount of charging points required to sufficiently cover charging needs – ie a multiplier of two for the overall vehicle stock (one car to be charged at home and/or at a publicly-accessible point)<sup>6</sup>.
  - Keeping the ratio of 1:10 between public and private charging points.
- The recently-adopted CO<sub>2</sub> regulation for cars and vans in principle requires an electrification rate of 35% by 2030, and specifies a 15% benchmark for 2025.

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<sup>6</sup> See original impact assessment of the DAFI proposal, page 19-20 (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013SC0005>). Reference to the IEA study 2011, Technology Roadmap, Electric and plug-in hybrid electric vehicles, available at: [http://www.iea.org/papers/2011/EV\\_PHEV\\_Roadmap.pdf](http://www.iea.org/papers/2011/EV_PHEV_Roadmap.pdf).

- It is estimated that some 28-33 million electrically-chargeable vehicles will have to be on the road in the EU by 2030 to reach the level of electrification required by the regulatory targets.
  - Those values were presented by the Commission in their assessment of how to reach the 2030 targets<sup>7</sup> and recently confirmed by Transport & Environment<sup>8</sup>.
  - Generally speaking, ACEA agrees with these estimates.
- With respect to the number of hydrogen re-fuelling stations needed, ACEA's figures follow the Commission's original estimates and calculations, although foreseen use-cases for light commercial vehicles should also be covered.
- Based on the above-mentioned assumptions, the table below provides an overview of the infrastructure that ACEA believes is needed to reach the targets set by the current CO<sub>2</sub> legislation.
  - These numbers do not take into account any higher ambition levels that would be the result of the Green Deal objectives.

Charging points and re-fuelling stations			
	Currently available <sup>9</sup>	Needed by 2025	Needed by 2030
Electric charging points	165,000	2.4 - 2.8 million	5.6 - 6.6 million
H2 stations (700 bar)	Roughly 165 for cars (16 for buses)	45 <sup>0</sup>	960 <sup>10</sup>

With respect to the qualitative requirements for these charging points and hydrogen stations, ACEA believes that the European Commission should take the following criteria into account when proposing the mandatory targets for member states.

- There should be a balanced share of (publicly-available) AC charging and DC charging points in line with agreed standards (at least one CCS Type 2 Combo EN 62196-3 for DC charging and Type 2 EN 62196-2 for AC charging) to support both short- and long-distance travel.
- All public parking places must be equipped with charging spots, whenever the local situation allows it. The Commission should also explore ways to stimulate charging at private parking spots, which can contribute to creating a critical mass.
- With respect to high-power charging (ie at least 150kW), there should be a requirement that ensures a maximum distance of 50 kilometres between charging points across the TEN-T network as well as primary/main roads across the EU by 2025. Every high-power charging station must have at least two charging points.

<sup>7</sup> [https://ec.europa.eu/clima/sites/clima/files/transport/vehicles/docs/non\\_paper\\_co2\\_proposal\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/transport/vehicles/docs/non_paper_co2_proposal_en.pdf)

<sup>8</sup> <https://www.transportenvironment.org/sites/te/files/publications/01%202020%20Draft%20TE%20Infrastructure%20Report%20Final.pdf>

<sup>9</sup> Based on EAFO statistics – available at: <https://www.eafo.eu/> and <https://h2-map-eu/>.

<sup>10</sup> Original proposal calculated around 160 H2 stations for 300km coverage. In order to ensure 50km coverage, 960 H2 would be needed.

- In addition, all public charging points should be linked to an EU-wide information portal – for example, by making existing (private) information accessible through open protocols – in order to provide customers with up-to-date information on the availability of charging points, their geographical location, status and the type of power provided.
- Public charging stations also must be located in such a manner that they facilitate charging for those people not able to charge at home or at work.
- Finally, the Commission should provide clear definitions of ‘public’, ‘semi-public’ and ‘private’ charging points in the AFID review.

## 6b) For heavy-duty vehicles (HDVs)

### Battery electric trucks

- In the truck segment, battery electric vehicles (BEVs) will be essential for the transition to carbon neutrality. Already by 2025 several thousand battery electric trucks will have to be put on the European market. By 2030, approximately 200,000 BEVs (>3.5t GVW) are estimated to be in operation in the European truck fleet. All of these vehicles will require (mostly private) depot charging stations and in addition to that – depending on their mission profiles – also public and/or semi-public charging points.
- Semi-public chargers should be located in places that are not accessible to the general public, but which are used by a multitude of different transport operators. Think for example of logistics hubs, areas designated for truck charging, drop-off/pick-up locations, etc. To ensure the best possible utilisation of these charging points, ACEA members are ready to provide information on suitable locations for the installation of chargers based on expected movement patterns of electric trucks.

Publicly-accessible charging points			
	Currently available	Needed by 2025	Needed by 2030
DC <100 kW	<10*	4,000 (+20,000**)	50,000 (+200,000**)
DC 350 kW	0	11,000	20,000
DC >500 kW	0	2,000	20,000

\* No detailed information available

\*\* Depot charging, not publicly accessible

- The availability of infrastructure in general, and different power/capacity levels in particular, will result in various technical solutions for heavy-duty vehicles. The current ‘break points’ are (roughly) 100kW (200A), 350kW (500A) and 750kW (1,000A). While some of the technical details are not known yet, it is clear though that under the current regulations and the

existing business model (especially in long-haul transport) recharging for a four-and-a-half-hour drive may take no longer than 45 minutes. This (roughly) translates into a charging capacity of around 600-800kW.

- Long-haul trucks in particular will require high-power charging stations of DC >500 kW. Hence, the rapid implementation of standards for the high-power charging of commercial vehicles (HPCCV) with 1-3MW (currently developed as part of the CharIN initiative) is key to meeting plans for the electrification of long-haul transport.

### Hydrogen (fuel-cell) trucks

- With respect to hydrogen fuel-cell electric trucks, the estimates presented here are based on the current status of technology readiness and market development. At this stage a distinction between compressed and liquefied hydrogen is not being made. However, if hydrogen will be delivered in liquefied form to stations, both could technically be offered to customers.
- It is important to note that hydrogen (H<sub>2</sub>) infrastructure for passenger cars can only be partially used by trucks. The existing 350 bar stations can already serve many of today's vehicles as well as various future applications. But long-haul applications may require higher pressure levels (up to 700 bar) or liquefied H<sub>2</sub>. These re-fuelling concepts need to be standardised first and today's technical challenges require more research and development.

Publicly-accessible hydrogen stations			
	Currently available	Needed by 2025	Needed by 2030
H <sub>2</sub> stations (compressed, liquified)	16 (350 bar, for buses)	50 at least	500 at least

### Gas trucks

- Thousands of natural gas-powered trucks are already part of the European fleet today, making a contribution to lowering CO<sub>2</sub> emissions from road freight transport. These vehicles will play an important role in the transition to carbon neutrality, especially considering the CO<sub>2</sub> reduction potential of renewable, low-carbon fuels like biogas.
- Truck-specific public fuelling stations for compressed natural gas (CNG) and liquefied natural gas (LNG) are currently available in some member states, but overall their distribution is still very patchy across the European Union.
- Moreover, today's LNG infrastructure mainly supports regional-haul operations in countries with filling stations. To support efficient long-haul and interregional transport a more comprehensive network of LNG filling stations is needed.

Publicly-accessible CNG/LNG stations			
	Currently available	Needed by 2025	Needed by 2030
CNG stations	300	400	500
LNG stations	252	750 at least	1,500 at least

## 7) Create an EU-wide infrastructure network

Fast-tracking of actions at EU level, combined with national investments, should ensure the creation of an EU-wide infrastructure network along the TEN-T routes and primary/main roads. This critical basic network of public charging points and re-fuelling stations must provide all alternative fuels, should allow for ad-hoc payments (ie all publicly-accessible points and stations should at least accept payment using the EMV NFC standard<sup>11</sup> or cash, without the need for any contract with the energy/mobility provider) and must mandatorily be connected to a roaming platform. This would increase customer convenience and reduce the overall charging time. Finally, the earlier-mentioned roaming platforms will ensure non-discriminatory access for all customers.

## 8) Improve data quality and monitoring at EU level

ACEA strongly encourages the Commission to improve the quality of data gathered and provided by the European Alternative Fuels Observatory (EAFO) in order for it to become the (single) solid and robust information point for statistics on alternative fuels infrastructure. With respect to electric charging points, the main problem at the moment is that most points reported by EAFO are in fact “below 22kW”, which also includes ordinary, low-capacity power sockets in garages. This type of data does not help policy makers nor manufacturers. More detailed and structured data is much needed. Hence, the Commission should make significant investments in this area, which is also critical to improving consumer trust in (the range of) alternatively-powered vehicles.

More specifically, there should be clear information on the power of each charging point – ie not only indicating “below 22kW” or “above 22kW” as the EAFO currently does. This is especially true for high-voltage/fast charging for both passenger cars and heavy-duty vehicles, and should be done in line with the definitions of the EN 17186 CEN standard. Information should also be given about the number of charging points/sockets available per station.

When it comes to monitoring, the Commission should provide clear guidelines to member states with respect to accessibility of the charging points, their status, how they should be monitored, etc. This should serve as the basis for high-quality monitoring of infrastructure at EU level. Open

<sup>11</sup> EMVco = American Express, Discover, JCB, Mastercard, UnionPay and Visa. EMV is a global standard for all bank cards to support operability and to prevent fraud. See [www.emvco.com](http://www.emvco.com).

protocols should be used to link up monitoring systems currently used for private customers.

## g) Promote smart charging and flexible pricing

As ACEA made clear before in the earlier-mentioned joint statement with Eurelectric and Transport & Environment, the European Commission should step up efforts to promote smart charging, which is needed for the successful integration of electro mobility in the European energy system. Smart charging allows electrically-chargeable vehicles to contribute to peak shaving, to the better integration of renewables (through time-shifted charging) and to the reduction of additional expansion of distribution networks.

Proper implementation of smart charging (one-way charging from grid to vehicle for the moment) is needed to fully harness the synergies between vehicles and the power system (with a possible future two-way electricity flow between vehicles and grids). This will start by optimally managing charging events and related electricity flows, ensuring the best possible driver experience while optimising power flows and avoiding grid constraints. Supportive measures towards flexible pricing for the final consumer/customer should be promoted and included in the AFID review as well.

## 10) Complete standardisation

Finally, the European Commission should ensure that the remaining (missing) technical standards are put in place as soon as possible. This is especially valid for:

- High-power electric charging above 150kW (needed for both passenger cars and commercial vehicles). In order to ensure wide compatibility with different vehicle architectures, now and in the future, all DC charging stations shall (at a minimum) support a voltage range of 200-920V, regardless of charging power.
- For electric buses, charging standards according to CEN/CENELEC mandate are waiting for completion and publication.
- ISO standard 15118 is an established interface for customer-friendly and interoperable charging. The Commission must provide guidance to member states in order to ensure the coherent application of this ISO standard throughout the European Union (including follow-up modifications, such as 15118-20). A general set of fulfilment criteria should be established to ensure high-quality operability and interoperability across both the EU and different vehicle manufacturers. Unique certification services (including the issuing of so-called 'plug & charge' certificates) according to ISO standard 15118 must be prevented and/or regulated.
- Moreover, the Commission should explore ways to standardise charging stations. Think, for example, of the need for fixed charging cables, a remote maintenance function and the definition of error codes.
- Rapid implementation of standards for high-power charging of commercial vehicles (HPCCV) with 1-3MW (currently developed as part of the CharIN initiative).

- Standardisation of hydrogen fuelling nozzles and receptacles for applications other than typical light-duty vehicles.
- An update of EN 17127 for heavy-duty applications and re-fuelling protocol.
- All hydrogen refuelling stations should at least comply with the applicable standards: ISO 17268:2020 on refuelling connection devices, EN 17127:2018 on filling protocols and EN 17124:2018 on hydrogen quality and quality assurance.
- The Alternative Fuels Infrastructure Directive should provide clear information with respect to consumer communication for all alternative fuel identifier labels, including EN 17186.
- The AFID review should also bring clarity to the definitions of charging points. Indeed, 3.7 kW charging does not really exist in publicly-accessible areas. That is why ACEA proposes the following classification system for publicly-available charging points (all including the ISO 15118 communication protocol):
  - 3.7kW-11kW is 'normal charging' (AC charging).
  - 22kW-100kW is 'fast charging' (combination of AC and DC charging).
  - 150kW and above is 'high-power charging for passenger cars'.
  - 350kW and above is 'high-power charging for heavy-duty vehicles'.



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## ABOUT THE EU AUTOMOBILE INDUSTRY

- 13.8 million Europeans work in the auto industry (directly and indirectly), accounting for 6.1% of all EU jobs.
- 11.4% of EU manufacturing jobs – some 3.5 million – are in the automotive sector.
- Motor vehicles account for €440.4 billion in taxes in key European markets.
- The automobile industry generates a trade surplus of €84.4 billion for the EU.
- The turnover generated by the auto industry represents over 7% of EU GDP.
- Investing €57.4 billion in R&D annually, the automotive sector is Europe's largest private contributor to innovation, accounting for 28% of total EU spending.

## ACEA MEMBERS

**BMW Group**



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**Ferrari**



**HONDA**  
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[communications@acea.be](mailto:communications@acea.be)



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