

## Regulations

### Euro 7/VII

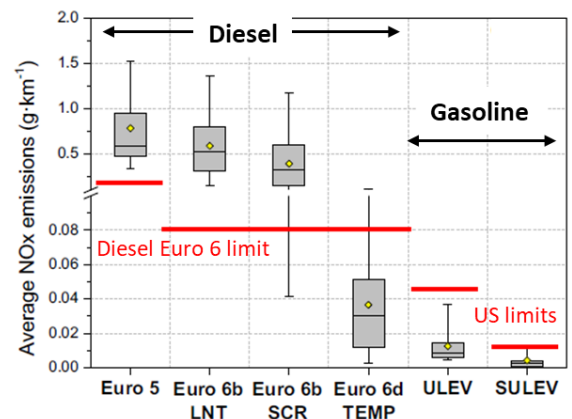
- The European Commission’s Advisory Group on Vehicle Emissions Standards (AGVES) held another discussion on Euro 7/VII on 24<sup>th</sup> February. Various stakeholders presented their views, including ACEA and CLEPA (the OEM association), AECC (the emission control suppliers association) and Transport and Environment (T&E, NGO). AECC showed test data cautioning that severe tailpipe limit reductions may be difficult to meet when combined with concomitant changes to test boundary conditions (low temperature, reduced urban distance, etc.). ACEA and CLEPA are opposed to significant tightening and questioned the need based on air quality modeling. T&E expressed the opinion that the most stringent “scenario B” limits (discussed in the October 2020 meeting) are the only acceptable ones and reiterated their position for moving to rapid electrification.
- In a recent publication, the Joint Research Center has recommended that the conformity factor (CF) associated with portable emission measurement equipment for particle number count be reduced from the current 1.5 to 1.34. This is not a regulation yet, but the European Commission considers inputs from the JRC carefully when setting future standards.

<https://op.europa.eu/en/publication-detail/-/publication/926f1456-7587-11eb-9ac9-01aa75ed71a1/language-en>

## Technology

- A team from Korea measured on-road tailpipe NO<sub>x</sub> emissions from > 100 gasoline and diesel vehicles to assess the effectiveness of regulations. The study found that post Euro 6d, diesel vehicles are emitting below the laboratory emission limits and that RDE regulations have been effective in overcoming the previous shortfalls. However, emissions were still ~ 7 times higher compared to gasoline vehicles certified to SULEV standards.

<https://doi.org/10.1016/j.scitotenv.2020.144250>



- Vitesco has announced that their EHC systems will be capable of handling higher voltages (200 – 450 V) typical of plug-in hybrids. The new offering is not a new or improved EHC but rather around the DC-DC converter.

<https://www.greencarcongress.com/2021/02/20210224-vitesco.html>

- Nissan announced having achieved 50% brake thermal efficiency (BTE) for a gasoline dedicated hybrid engine running at constant speed. Current commercial gasoline engines offer best BTE of ~ 40%, and Weichai had announced a 50% BTE diesel heavy-duty engine last year. An application of such a fixed rpm engine could be for range extender vehicles, where the engine is used primarily to charge the battery.  
[https://www.greencarreports.com/news/1131416\\_nissan-claims-50-thermal-efficiency-from-engine-for-e-power-hybrid-system](https://www.greencarreports.com/news/1131416_nissan-claims-50-thermal-efficiency-from-engine-for-e-power-hybrid-system)
- Cummins, in collaboration with UC Riverside and key instrument suppliers (Horiba, AVL, TSI) have published their findings on sub-23 nm particle measurement capabilities. The paper, SAE 2021-01-5024, will be available for download after SAE WCX. The study shows that above 250 °C, sub-23 nm particle measurement in diesel engines could be significantly overestimated due to detection of urea particles associated with upstream SCR.

## Electrification / Non-conventional fuels / Other

- European OEMs made announcements of target dates for the phase out of ICE powered vehicles:
  - Jaguar Land Rover anticipates that its Jaguar brand will be all electric by 2030 while all other vehicles sold will be fully electric by 2036.  
<https://media.jaguarlandrover.com/en-us/news/2021/02/jaguar-land-rover-reimagines-future-modern-luxury-design>
  - Ford of Europe has announced that 100% of its vehicles will be plug-in (full BEV or PHEV) by 2026 and full electric BEV by 2030. Two thirds of commercial vehicles will also be plug-in capable by 2030.  
<https://media.ford.com/content/fordmedia/feu/en/news/2021/02/17/ford-europe-goes-all-in-on-evs-on-road-to-sustainable-profitability.html>
  - Volvo has announced that it targets 50% battery electric and 50% hybrid sales by 2025 and then to sell only battery electric vehicles by 2030.  
<https://www.media.volvocars.com/global/en-gb/media/pressreleases/277409/volvo-cars-to-be-fully-electric-by-2030>
- Daimler Truck and Cummins entered a strategic partnership in which Cummins will manufacture Euro VII compliant medium duty engines for Daimler. The move is expected to begin in the second half of the decade. It will help Daimler free up resources for focusing on zero emission powertrains and the development of heavy-duty engines.  
<https://www.daimler.com/investors/reports-news/financial-news/20210223-daimler-truck-cummins-plan.html>
- Hyundai is recalling 82,000 electric vehicles globally, a move that is expected to cost the company \$900 million. The vehicles used batteries provided by LG Chem.  
[https://www.greencarreports.com/news/1131385\\_hyundai-kona-electric-battery-packs-most-expensive-ev-recall](https://www.greencarreports.com/news/1131385_hyundai-kona-electric-battery-packs-most-expensive-ev-recall)
- Unifrax, which we know as a supplier of substrate mats, has introduced a new silicon fiber anode battery technology. The technology will help increase battery energy density and is expected to be in production starting 2022.  
<https://www.unifrax.com/2021/03/02/unifrax-announces-lithium-ion-battery-anode-technology-coming-early-next-year/>