

5-Min Monthly Read April 2025

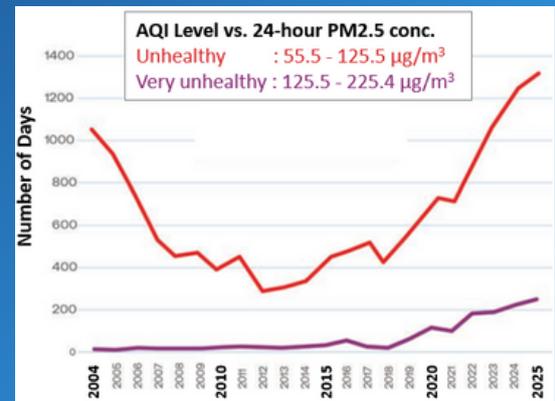
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That sneeze may be more than spring allergies ...

Nearly half of Americans are breathing unhealthy air

The American Lung Association has published the 2025 "State of the Air" report. It warns that a total of 156 million people are living in areas with high ozone or particulate matter pollution in the U.S. This is an increase of 25 million additional people living in unhealthy conditions vs 2024.

The number of days of poor air quality has been rising for the past several years now. 154 counties in 27 states get failing grades for short-term particle pollution.



The report takes aim at the growing disparity between the need for continued improvements in air quality and the deregulatory actions being pursued by the current administration.

US House of Representatives votes to repeal California regulations

The House used the Congressional Review Act (CRA) to vote against the previously issued waivers for California to set low NOx standards for trucks, mandate sales of ZEV trucks (ACT) and mandate sales of ZEV light-duty vehicles (ACC II). The Senate has previously warned against the use of CRA as waivers are not technically "rules" and now the Senate will have to vote on this issue next.

Trump signs Executive Order to ease auto tariffs

President Trump has signed an Executive Order which aims to reduce the previously announced 25% tariff on auto parts. According to this new EO, vehicles that are assembled in the U.S. will qualify for partial reimbursements on these tariffs for two years.

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Policies, Regulations, Reports

EU Commission proposes periodic technical inspection & remote sensing



The EU Commission has published its proposal on the a comprehensive overhaul of the EU's road safety and vehicle registration rules. A few key elements related to emissions:

- (1) **Remote sensing** of NOx and particulates to be used a part of roadside inspection for identifying high emitting vehicles. Each Member State should screen > 30% of registered fleet of motor vehicles.
- (2) Each member state should conduct **technical roadside inspections** on > 5% of heavy commercial vehicles.
- (3) Commission will specify methods for PN measurement of positive ignition engines and for the NOX measurement of compression and positive ignition engines.

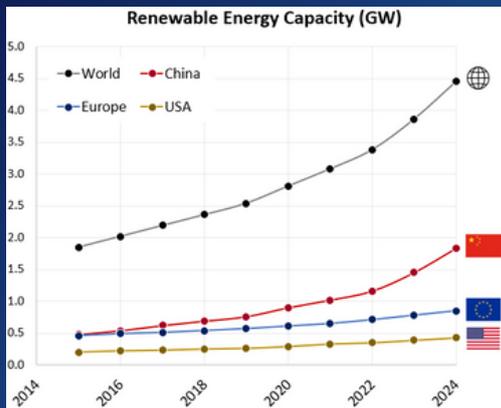
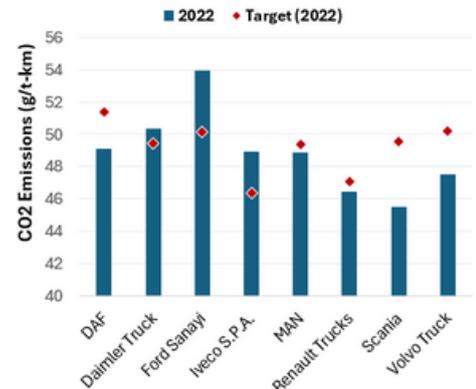
Member States will be required to report the data collected to the Commission, with the first report covering years 2027, 2028 and 2029 each.

The proposal will be next considered by the European Parliament and the Council.

EU HDV CO2 Emissions published

The EU Commission has published the official CO2 emission performance of heavy-duty vehicles in Europe.

Many OEMs - especially Scania and Volvo Truck - are ahead of the requirements and have amassed credits, while others have their work cut out as we approach the 2025 target of 15% reduction compared to 2019 baseline.



Renewable Energy Capacity, 2025

International Renewable Energy Agency (IRENA) has published the "Renewable Capacity Statistics 2025" report.

- Renewables now account for 46% of global power capacity.
- In 2024, the global renewable capacity grew by 15%, and accounted for 92.5% of overall power additions.
- China, US and Europe account for 84% of new renewable capacity added in 2024, pointing to the regional disparity.
- China alone accounts for a third of the global hydropower, and half of solar and wind capacity, each.

MobilityNotes Members - see [here](#) for a downloadable Excel file with more details

CATL unveils 1500 km range battery, 12C

At its “Super Tech Day” event on April 21, CATL unveiled three advanced batteries:

(1) The “Freevoy Dual-Power” battery: This has a dual-core architecture which optimizes high-power and extended range operations, enabling a driving range of 1500 km on a single charge. The battery has two zones with different cell materials to implement high- and low-voltage systems.



(2) Shenxing superfast charging battery: This is an LFP battery with 800 km range, capable of receiving up to 1.3 MW power at 12C peak charging rate, providing 520 km range in 5 mins.

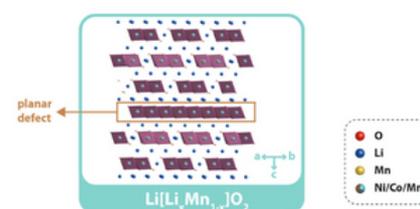


(3) World-first mass produced Na-ion battery: The Naxtra Na-ion passenger car EV battery has an energy density of 175 Wh/kg, bringing it in the LFP range. It offers 500-km range and 10,000 cycles. It is also available as an integrated start-stop battery for heavy-duty trucks.

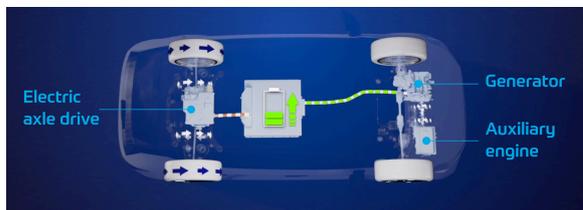


Ford working on Lithium Manganese Rich batteries

A post from Ford mentions that it is close to introducing Lithium Manganese Rich (LMR) batteries in its future vehicle lineup. The chemistry is expected to provide higher energy density than even high-Ni ones, and cost significantly lower than mid-Ni ones. LMR chemistry isn't new - this picture of the crystallographic structure is taken from a 2016 review article



Extended range EVs (EREVs)



Range extenders couple an engine which couples with a generator to charge the battery. The engine can operate with highest efficiency.

Notwithstanding the battery improvements, range anxiety is still a thing, and there is a growing interest in range extenders. Tapping into this, ZF is introducing the next generation products, electric Range Extender (eRE) and the electric Range Extender plus (eRE+). These connect an electric motor with an integrated inverter, software, and planetary gearset and offer outputs up to 110 & 150 kW, respectively. The development was led out of China, where there is highest interest in EREVs.

Spotlight on Latin America

Guest Contribution from Raimundo Nóbrega



Renault and Geely are partnering to bring EVs and hybrids in Brazil. The all-electric Geely EX5 SUV will be launched in July. This gives Geely access to Renault's manufacturing facility, and local manufacturing.

- There are concerns being expressed about this influx of Chinese vehicles. The National Association of Automotive Vehicle Manufacturers (Anfavea) is warning that these imports pose a risk to national production, and the impact on local jobs.
- Starting July, Brazil is increasing the import tax from 18% to 25% for EVs and to 30% for hybrids, and it will continue to increase till it reaches 35% for all vehicle types by July 2026.
- Chinese authorities are also taking a hard look at allowing investments by Chinese OEMs in Latin America, citing concerns of possible technology transfer to the U.S.

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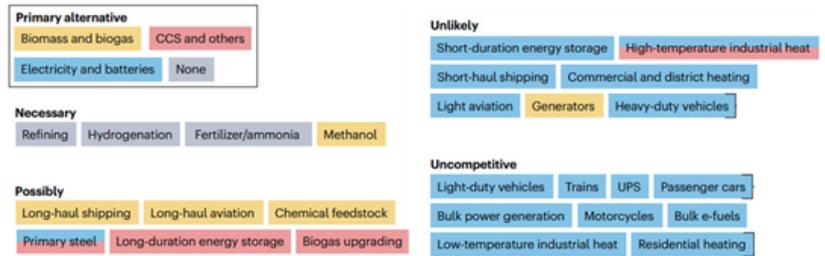


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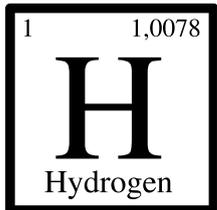
Publication explores pragmatic pathways for H2 use in energy transition

A paper published in Nature Reviews examines the role hydrogen can play in the energy transition. It considers various factors such as capital and fuel cost, fuel transport and storage, and system efficiencies, to make the case that hydrogen should be first used to decarbonize the existing applications of refining and ammonia production.

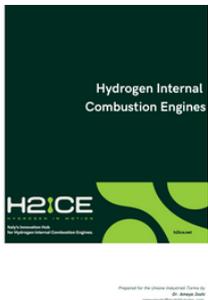


The study cautions against expecting rapid cost reductions like those seen with batteries, and the need to incorporate lifecycle GHG emissions (such as associated with H2 and methane slip) when calculating the decarbonization potential.

Hydrogen or electric? How about both ?



BYD is partnering with US Hybrid Corporation to develop fuel cell range extended battery electric buses for deployment at Honolulu’s international airport. This is being developed as part of Hawaii’s Clean Energy Initiative (HCEI) to meet sustainable energy objectives – Hawaii aims to be powered by 100% renewable energy by 2045.



Download H2-ICE White Paper

MobilityNotes has authored a new H2-ICE white paper commissioned by Italy’s Innovation Hub for Hydrogen Internal Combustion Engines. It was published and released at the SAE WCX 2025 held at Detroit, and can be downloaded for free [here](#).

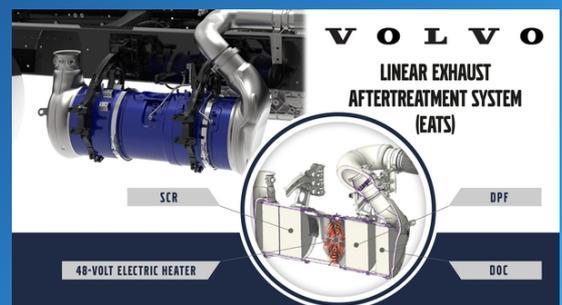
Engines & Fuels

Volvo seeking certification for CARB 2024 Omnibus Compliant engine

Volvo Trucks is seeking certification of its new 13L engine, compliant with California’s MY2024 Omnibus regulation, which requires 75% reduction in NOx and 50% in PM.

The engine is built on the D13 VGT platform, and has an advanced after-treatment system including a 48V electric heater.

The engine will power all VNL and VNR models with expected available configurations of 425 HP/1750 lb. ft. torque or 455 HP/1850 lb. ft. torque





Caterpillar's New C13D fuel-flexible engine on display at Bauma

At Bauma Munich, Caterpillar Industrial Power Systems showcased its new 13L 6-cylinder C13D engine, which offers up to 20% higher power and 25% increase in low speed torque compared to previous generation engines.

The engine will meet emission standards in major markets (incl. Euro Stage V) and will enter production in 2026. It is compatible with 100% HVO and B20.

Caterpillar also showcased its series hybrid powertrain, where the engine drives a generator to power batteries and motors to ultimately drive the machine.

EPA allows nationwide yearlong E15

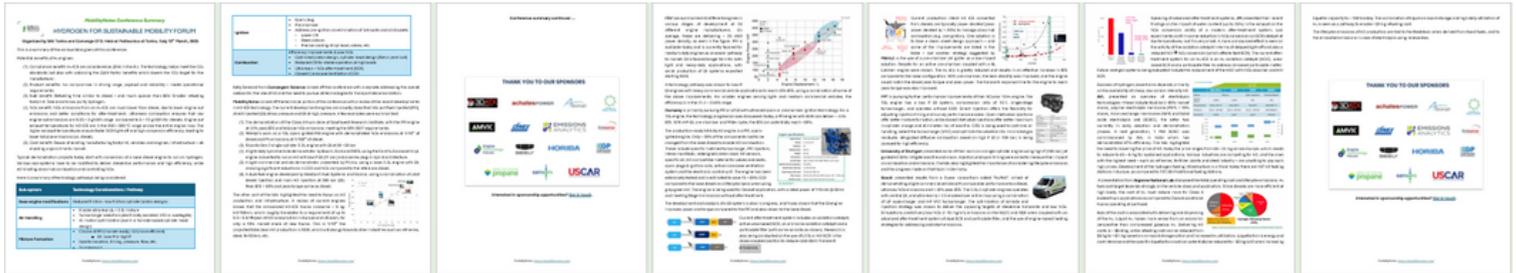
The US EPA issued an emergency waiver allowing the sale of E15 (15% ethanol blended gasoline) through the summer. Currently, in about half of the country, E15 cannot be sold from terminals starting on May 1 and at retail stations starting on June 1.



It is conference season - lots of interesting conferences happening across the world. We will be writing summaries of a select few and emailing it to subscribers (some are exclusive to paid members only).

CONFERENCE SUMMARIES

Summary of SAE On-Board Diagnostics Symposium-Europe Submitted by MAHLE Powertrain - click [here](#) to download.



COMING NEXT -

- SAE WCX
- SAE HEAVY-DUTY GOTHENBURG
- ACT
- CRC WORKSHOP

CONFERENCES / UPCOMING EVENTS

Heavy-Duty Sustainable Transport Symposium, May 7 – 8, Gothenburg, Sweden
[Heavy-Duty Sustainable Transport Symposium \(sae.org\)](https://www.sae.org/conferences/2025/hd-sts)

46th International Vienna Motor Symposium, May 14 – 16, Vienna
<https://www.wiener-motorensymposium.at/en/>

Transportation Energy 2025 Annual Conference, May 19 – 21, San Antonio, Texas
<https://www.transportationenergy.org/events/annualmeeting/fuels2025>

Off-Highway Powertrain & Fuels USA 2025, May 21 – 22, Chicago
<https://conferences.emissionsanalytics.com/offhighway-us25/index.html>

2025 Annual Merit Review (AMR), June 2-5, Arlington, Virginia
<https://www.energy.gov/eere/vehicles/vehicle-technologies-annual-merit-review>