5-Min Monthly Read March 2025

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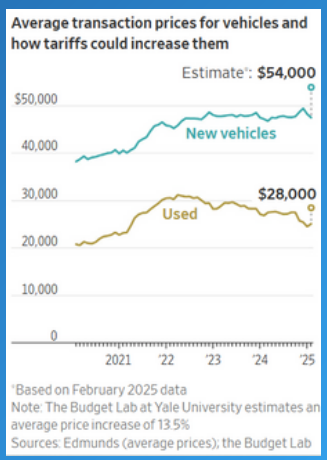
And you thought cars were expensive during COVID ?

Cars expected to get pricier as US auto imports hit with 25% tariff

President Trump has announced up to a potential 25% tariff after April 3rd (May 3rd for engines, transmissions, etc.) on automobiles and automobile parts imported into the U.S. The actual extent of tariffs will be commensurate with the extent of non-US content of the vehicle and other considerations. Get in touch if you are looking for a deep dive on this topic.

What is the expected impact ?

Perhaps too soon to tell. Even vehicles made in the US are not 100% domestic content and there will be a lot of number crunching done to estimate the tariffs across the industry. Some thoughts / reading -



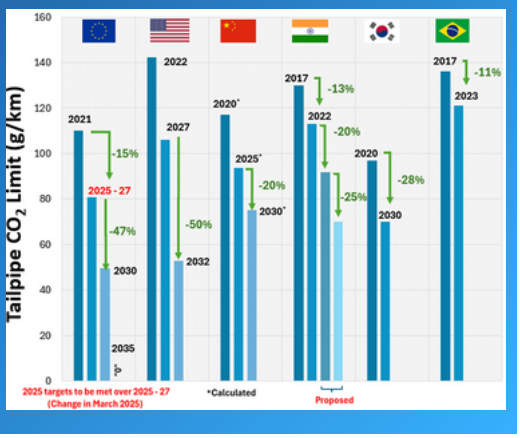
- According to WSJ, a Yale University study puts the price increase at 13.5% on average, to already expensive cars. This could drive up demand for the used car market.
- The highest US automobile imports in 2024 were from Mexico ($78B), followed by Japan, Korea, Canada and Germany ($25 - $40B).
- Most US OEMs depend on overseas supply chain of parts, even if cars are assembled locally.
- A study done last year by the US International Trade Commission concluded that a 25% tariff could reduce imports by almost 75%, while increasing average prices in the US by about 5%.
- A report by Pickering Energy Partners is a good summary of the tariff scenarios and their possible impact on the industry. Reach out to the author, Graham Conway, for more details.

Policies, Regulations

Auto industry in Europe gets a breather

The European Commission published the "Industrial Action Plan for the European automotive sector" which amends the CO2 standard for cars and vans. The 15% reduction in 2025 compared to a 2021 baseline is maintained but the industry is allowed to meet the standards over 2025 through 2027.

Read downloadable summary here.



U.S. EPA announces sweeping deregulatory actions

The U.S. EPA has announced several actions aligned with President Trump's executive orders aimed at reducing regulations in the auto and energy sectors. Some of the key actions pertinent to mobile emissions:

1. Reconsideration of light-, medium and HD GHG standards (MY 2027, GHG Phase 3)
2. Reconsideration of the 2009 Endangerment Finding that underpins all CO2 standards
3. Reconsideration of PM2.5 National Ambient Air Quality Standards (NAAQS)
4. Repeal of the "Social Cost of Carbon"
5. Terminating Environmental Justice considerations
6. Reconstituting the Science Advisory Board and Clean Air Scientific Advisory Committee

In a related move, the EPA is reported to target a 65% reduction in the agency budget and make deep personnel cuts or reassignments at the Office of Research and Development, its scientific research arm.

U.S. moves to fast-track Critical Mineral production

An Executive Order signed on March 20th, 2025 by President Trump calls for various agencies to list the locations where critical minerals are available and to make land permitting and projects there the highest priority.

A recent publication by Argonne National Lab shows that the U.S. will have to rely on various regions of the world, including China and Russia, and those with which it does not have free trade agreements, to meet the EV and energy storage needs.

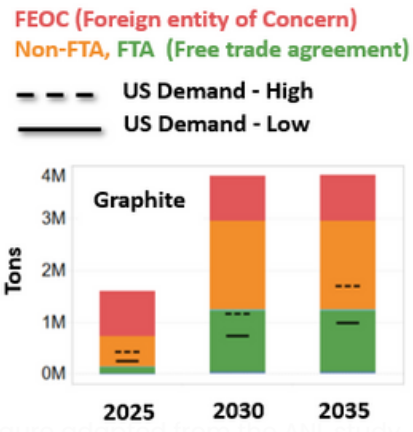


Figure adapted from the ANL study

(Near-) Zero-Emission Technologies

Electrification

Nio and CATL partner on battery swapping

Nio and CATL have announced a partnership on building a battery swapping network for passenger vehicles and the associated national standards. CATL will also introduce its "Choco-Swap" 42 - 70 kWh batteries to NIO's new firefly small EV brand.

*Read **here** for more details on both battery swapping & MW charging*

CATL expects 1,000 Choco-Swap stations in 2025, with each battery swap requiring only 100 seconds. NIO has built >3,000 Power Swap Stations across 700 cities. The latest Power Swap Station 4.0 completes a swap in 144 seconds and complete 480 swaps per day. CATL expects that by the end of this decade, battery swapping will cover 1/3rd of the market.

BYD mega-watt charging

BYD has introduced the Super e-platform with two new EVs with LFP Blade batteries capable of charging at 1,000 volt and rates of up to 1 MW (double the peak power of Tesla's 500 kW V4 Supercharger). Both models can add up to 400 km range in 5 mins. The models are priced at ~ $37,000.

The Han L has an 83.2 kWh LFP pack with a range of over 600 km.

The Tang L SUV has a 100.5 kWh LFP pack.

Spotlight on Latin America

Guest Contribution from Raimundo Nóbrega

In 2024, around 184,000 electric vehicles were sold in Latin America (major countries include Argentina, Brazil, Chile, and Mexico).

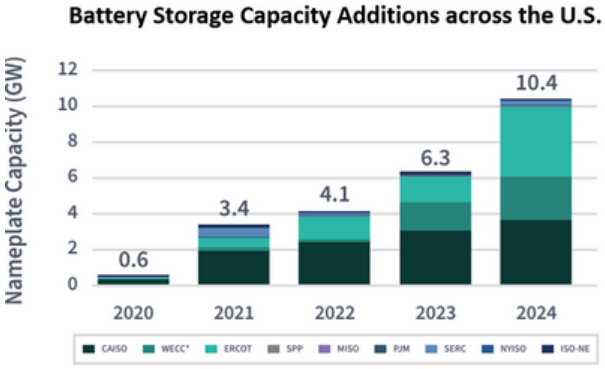
Brazil leads Latin America in vehicle sales, with 12,988 electric vehicles sold in February 2025, an increase of 24% compared to the same month in 2024. Compared to January of this year (12,556), the growth in electric car sales in Brazil was 3.4%.

BYD Dolphin & BYD Dolphin Mini are best-selling EVs in Brazil

State of electricity generation in the U.S.

The 2024 State of the Markets Report by the Federal Energy Regulatory Commission is published.

- Electricity generation in the US increased by 3% in 2024 to reach 4,151 TWh.
- At end of 2024, electricity capacity had a share of 44% natural gas, 14% coal, 12% wind, 9% solar, 8% nuclear, 7% hydro, 2% oil, 2% batteries and 1% other.
- Additions mostly came from renewables. Solar increased by 32%, wind by 7.7%. Coal generation decreased by 3.3%, natural gas increased by 3.5%.



The battery storage capacity is especially seeing a significant growth, increasing 3X over 2021 to 2024.

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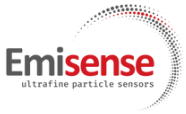
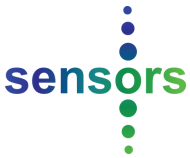




This newsletter reaches thousands of professionals across the world.
If you would like to highlight your organization and technology -

GET IN TOUCH

(Near-) Zero-Emission Technologies

Hydrogen

"Hydrogen for Sustainable Mobility Forum" held at Torino

A two-day conference organized by SAE Torino and Converge CFD covered a broad range of topics on H2 powered propulsion. Talks - one given by MobilityNotes - covered a broad range of topics, ranging from engine technologies and emissions control, to fuel and infrastructure developments and lifecycle considerations.

Click Here for a downloadable summary of the conference (for MobilityNotes members)

Spotlight on Hydrogen in India

India has bold plans for hydrogen. A government official announced a production capacity of 5 million metric tonnes (MMT) of H2 by 2030. Investments worth $96 billion are in the pipeline. The National Green Hydrogen Mission is leading this initiative, backed by a Rs. 600 crore (~ $7B) budget allocation for 2025.

A few recent developments

- Accelera™ by Cummins and GAIL, India's leading natural gas company, recently signed a MOU to collaborate on green H2 in India. In December 2024, GAIL commissioned a green H2 plant using Accelera's 10 MW proton exchange membrane (PEM) electrolyzer system. Two PEM HyLYZER®-1000 electrolyzer units produce 4.3 tons of green H2 per day, which is being blended with natural gas.
- Adani Total Gas has started blending 2.2 - 2.3% green H2 in natural gas pipelines supplied to a township in Ahmedabad, Gujarat. It aims to increase the blending to 8%.
- First Green Hydrogen Hub inaugurated at NTPC Renewable Energy Ltd., with JV agreements in place to produce 1500 TPD green H2 and 7500 TPD of derivatives such as methanol.

India's first-ever hydrogen truck trial begins

In March, Tata Motors has launched a 24-month trial of hydrogen powered trucks with varying payloads and configurations. The initiative was flagged off by the Union Minister of Road Transport & Highways Mr. Gadkari. Both fuel cell and H2-ICE trucks will be tested, and are expected to be able to cover up to 500 km between refueling.

Daimler Truck tests prototype fuel cell trucks in the Swiss Alps

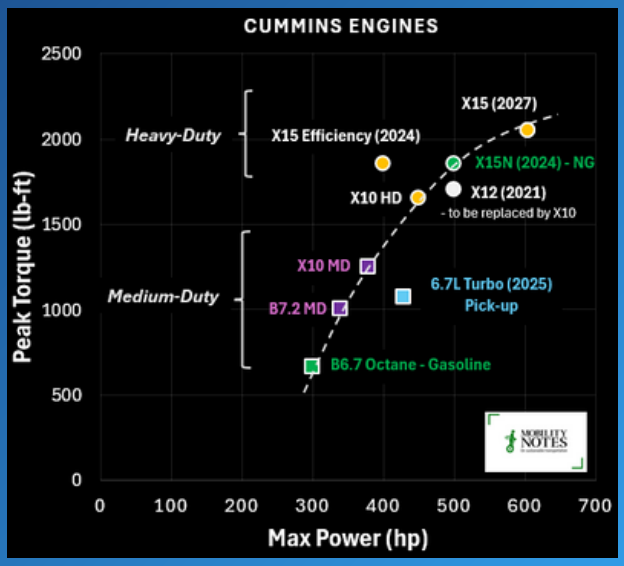
Daimler Truck has been developing hydrogen fuel cell trucks with a twist: the H2 on board is "liquid" as opposed to compressed gas. The truck was tested under severe weather and altitude (max > 2,000 m above sea level) conditions. Testing included that of various sub-systems and also the use of topography-dependent Predictive Powertrain Controls and the combination of propulsion using hydrogen and battery.

A total distance of 6,500 km was covered over 14 days of testing. H2 refueling was done using a mobile station from Air Products.

Engines & Fuels

Cummins expands its engine portfolio

Cummins has added a few new engines to its lineup of options capable of meeting EPA MY2027 standards:



(1) A first-ever gasoline **B6.7 Octane** engine with up to 300 hp and 660 lb-ft of torque. The engine uses a three-way catalyst only. Kenworth will be using the engine on its Class 5 - 7 trucks later this year.

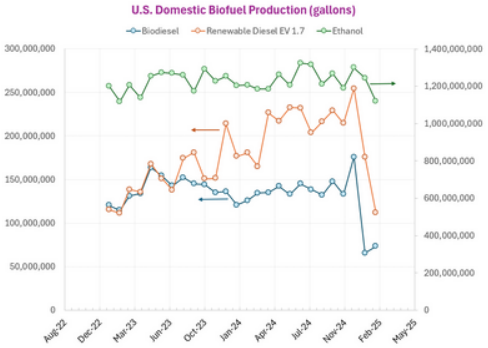
(2) The **B7.2 diesel engine** for medium-duty applications with up to 340 hp and 1000 lb-ft of torque, with automatic engine shut down and start-stop capability for GHG reduction. This will enter production in 2027.

(3) The **X10 diesel engine** with two ratings: medium-duty with up to 380 hp and heavy-duty with up to 450 hp. The engine is expected to replace the L9 and X12 engines and to be launched in 2026. Like the MY 2027 X15, the X10 will also have a 48V alternator which will power electric heater for low emissions.

Read the article on MobilityNotes, - Premium Members can access a downloadable slide.

Biodiesel and Renewable Diesel production in the U.S. hits a speed bump

The biofuels industry is eagerly waiting for clarification and a final rule that confirms the "45Z" Clean Fuels Production Credit. The current $1 blenders credit expired at the end of last year, leading to reduced production of these green fuels.
Read more here.



CONFERENCES / UPCOMING EVENTS

International Battery Seminar & Exhibit, March 17 – 20, Orlando, FL
https://www.internationalbatteryseminar.com/

SAE WCX 2025, April 8 – 10, Detroit, Michigan
WCX 2025 - April 8-10 (sae.org)

35th Real World Emissions Workshop, April 13 – 16, Long Beach, California
35th CRC Real World Emissions Workshop - Coordinating Research Council (crcao.org)

Onboard Sensing, Analysis, and Reporting (OSAR) 2025, April 17 – 18, Riverside, California
https://www.cert.ucr.edu/osar

Advanced Clean Transportation Expo, April 28 – May 1, Anaheim, California
https://www.actexpo.com/

Emissions Analytics Tire Emissions & Sustainability USA 2025, April 30 – May 1, Irvine CA
Tire Emissions and Sustainability USA 2025