



MEMO

TO: Interested Parties
FROM: Alliance for Automotive Innovation
DATE: April 6, 2023
RE: Auto perspective on coming EPA emissions rules

The Environmental Protection Agency (EPA) is expected to propose new light-duty vehicle greenhouse gas (GHG) and criteria emissions rules for model year 2027 through 2032 shortly. Alliance for Automotive Innovation will formally respond after reviewing the expansive proposal.

In the meantime, this memo outlines important questions and relevant data to consider when evaluating the feasibility of these regulations.

What is EPA expected to announce?

EPA's proposed GHG rules for 2027 and beyond will result in significantly more stringent greenhouse gas and criteria emissions standards than ever before. The EPA proposal – and a separate Corporate Average Fuel Economy (CAFE) rulemaking proposal from the Department of Transportation expected in the coming months – will indicate how the administration plans to meet President Biden's goal that one out of every two new light-duty vehicles sold to consumers by 2030 are electric vehicles.

Automakers are committed to electrification and net zero carbon technology.

Globally, automakers [will invest](#) \$1.2 trillion toward vehicle electrification by 2030, including significant investments in U.S.-based EV and battery manufacturing. Multiple manufacturers have announced a goal to be EV-only in the 2040 timeframe with supportive policies in place.

Current U.S. EV market data:

- 91 EV models (sedans, vans, pickup trucks, utility vehicles) currently for sale;
- 150 EV models expected for sale by 2026;
- EV market share of new vehicles sold in 2022: 7 percent (2021: 4.35 percent);
- EV market share of new vehicle sales reached almost 10 percent in December 2022.

Are the EPA rules feasible?

Even with positive EV sales momentum and product excitement, there are challenges to the electrification transition ahead. This requires a massive, 100-year change to the U.S. industrial base and the way Americans drive.

A clear-eyed assessment of market readiness is required. The answer on rule feasibility is: It depends.



Success will be tied to both supportive public policies and favorable market conditions outside the vehicle, notably, charging infrastructure, affordability, supply chains, critical mineral availability and utility capacity. Regulatory mandates alone will not address the conditions (again, *outside* the vehicle) that will determine the ultimate success of the EV transition.

Can drivers conveniently fuel EVs?

This is a big unknown and a market condition the country has to get right.

Reliable and ubiquitous public charging and action to address private and shared charging for multi-unit dwellings is essential to a successful transition and will determine whether GHG, CAFE rules and other mandates are feasible (or not).

The administration has committed \$7.5 billion to public charging. That's a good step, but at the end of 2022, there were only [100,000](#) non-proprietary public charging outlets in the U.S.

Even with 934,958 new EVs added to the roads in 2022, there were less than 25,000 non-proprietary public new chargers added. That means 38 new EVs for every new public port. That's not enough. (The [recommended ratio](#) is seven EVs for every charger).

McKinsey & Company estimates \$35 billion is needed for public EV charging stations by 2030.

S&P Global suggests the country needs 800,000 public charging ports by 2025 and 2.3 million by 2030.

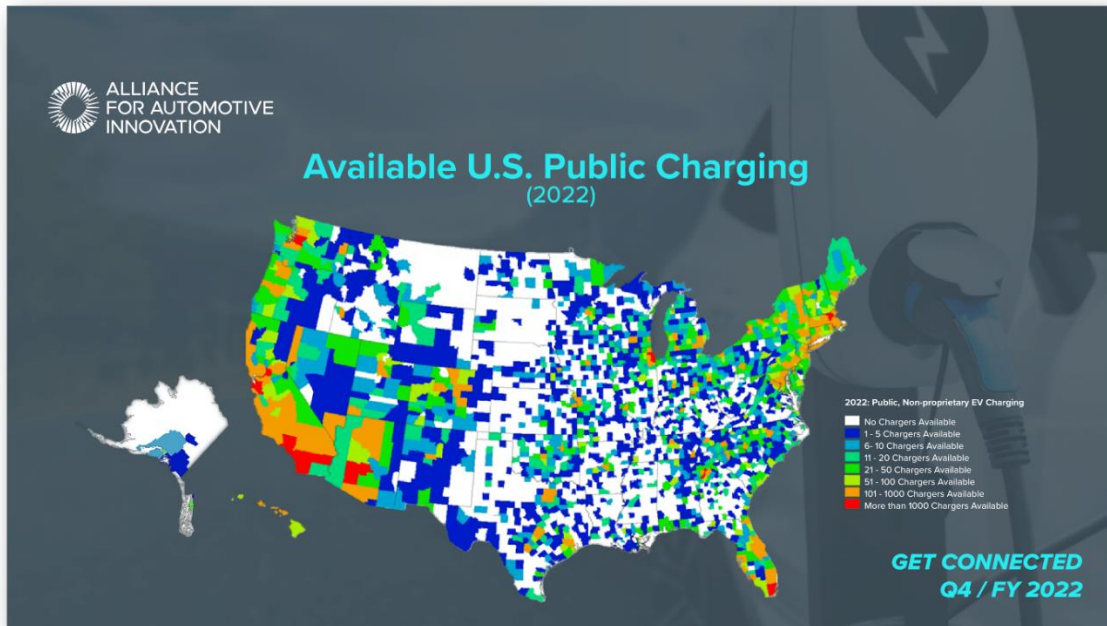
Most EV owners today are single family homeowners with access to reliable, low-cost, convenient home charging. This lack of public charging raises serious questions about equity and accessibility and whether there will be an EV charging network that reaches Americans in *all* corners of the country. Residential charging is necessary in multifamily and rental housing and in low-income communities.

Looking at the [3,100 counties](#) in the U.S. in 2022, the insufficiency of public charging is stark:

- 63 percent had five or fewer EV chargers installed;
- 39 percent had zero;
- The top 14 counties with EV chargers accounted for 30 percent of all U.S. charging infrastructure.

What about those 25,000 new public EV chargers added in 2022? How does that number breakdown?

- 53 percent of counties added no new chargers;
- 75 percent of counties added five or fewer chargers;
- 51 percent of added charging infrastructure was in just two percent of counties;
- 25 percent of added U.S. charging infrastructure was in California;
- 160 counties added one new charger.



What about the bipartisan infrastructure law and Inflation Reduction Act (IRA)? Won't that help increase EV adoption and affordability?

To increase EV adoption, consumer purchase incentives at the federal and state level are critical to reach all buyers, including lower income drivers.

The IRA's 30D tax credit provides a purchase incentive of up to \$7,500 for 37 different EV models today. The IRA also includes a \$4,000 tax rebate for used EVs purchased by buyers with lower incomes.

Remember this: the IRA's revised 30D EV tax credit (with strict new rules on the origin of critical minerals and battery components that kick-in after April 18) means fewer EVs will qualify for the \$7,500 customer purchase incentive.

About 40 percent of the 91 EVs on the market qualified for the 30D credit as of March 2023. That number will shrink when the Treasury Department's content requirements (40 percent critical mineral threshold and 50 percent battery component threshold for 2023) are implemented on April 18. See: [EV Tax Credit: Is This as Good as it Gets?](#)

The manufacturing tax credits and the various federal incentives and grants to help build an EV supply chain and globally competitive battery manufacturing platform is a positive policy.

However, it remains to be seen to what extent the infrastructure and supply-side provisions of these laws will have in the development of the U.S. EV market over the course of the proposed greenhouse gas rule (model year 2027-2032).



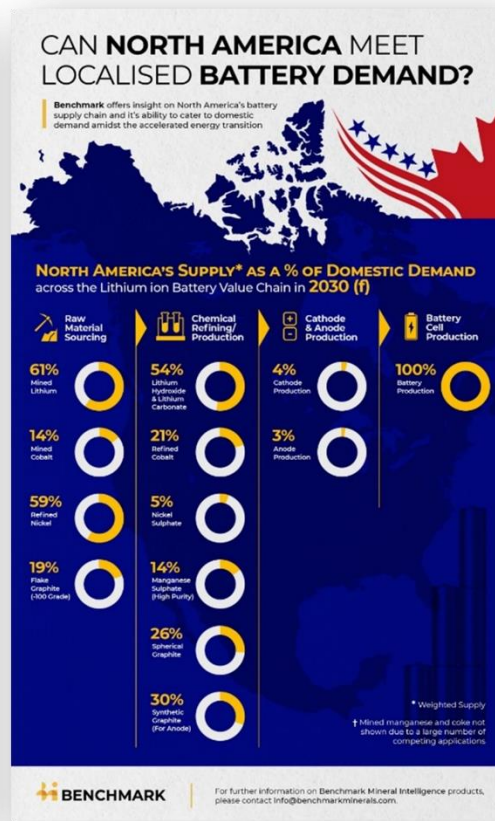
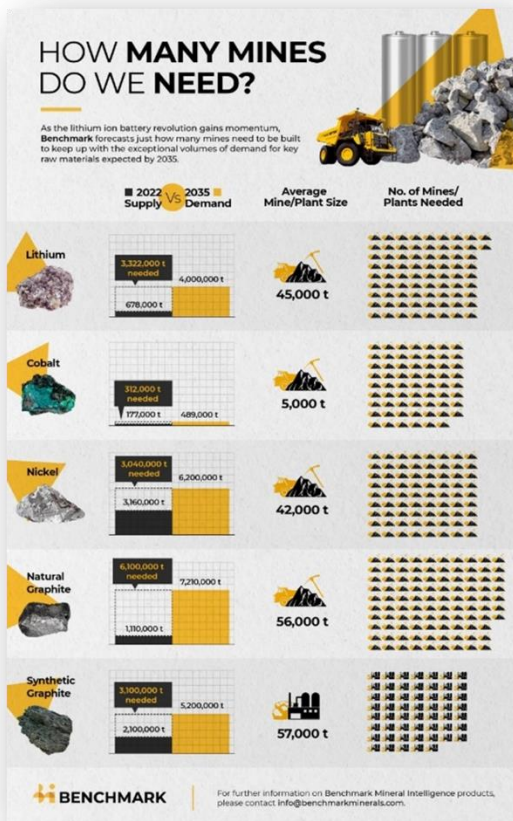
Can automakers secure the necessary battery critical minerals and processing to power EVs?

An open and consequential question.

Critical Minerals: Benchmark Minerals Intelligence (BMI) reports about [300 new mines](#) (graphite, lithium, nickel, and cobalt) are needed globally to meet the battery demand for EVs and stationary energy storage systems by 2035.

Processing: Raw critical minerals from the mine are just the first step. Those minerals must be processed, refined and turned into cathodes and anodes before battery cell production. [BMI estimates](#) that 90 percent of anode production currently occurs in China.

By 2030, it is estimated that North America will domestically fulfill only 3.5 percent and 3.4 percent of its cathode and anode demands respectively. To avoid dependence on countries like China, vastly more of these processing and production facilities are needed in the U.S., North America and allied countries.





Monumental amounts of capital are being invested in zero carbon personal mobility.

Every dollar invested in internal combustion technology is a dollar *not spent* on zero carbon technology. And vice versa.

Automakers and battery partners have already [committed](#) \$110 billion in the U.S. to electrify products. Requiring large investments for incremental gains from gas-powered engines comes at the expense of where our collective focus ought to be: *electrification*.

EPA should act quickly, working with the petroleum industry, to lower the carbon intensity of liquid fuels. This will pay far higher returns by reducing emissions from not only new gasoline vehicles (including PHEVs), but from the millions of light-duty gas vehicles on the road.

The auto industry opposes this and any new GHG rules, right?

Far from it. Look at the record.

In December of 2021, EPA published its ‘Vehicle Greenhouse Gas Emissions Standards’ rule setting motor vehicle GHG standards for cars, light trucks and other vehicles in model years 2023 to 2026. That rule is expected to produce an improvement in fleetwide GHG emissions of more than 28 percent from emissions in model year 2022.

This rule is being challenged in federal court by 16 attorneys general (in Texas, Alabama, Alaska, Arkansas, Arizona, Indiana, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, Ohio, Oklahoma, South Carolina and Utah) and various fuel interests.

Automakers – the regulated industry – *did not oppose* those rules and are on record that EPA’s rules (though challenging and aggressive) should remain in place. In fact, Alliance for Automotive Innovation [intervened](#) in the litigation *on behalf* of EPA’s 2023-2026 rules and asked the D.C. Circuit to protect the 2021 rule as written.

America’s electric transformation is well underway. The vehicles are in production and automakers are committed to the shift.

The question isn’t whether it can be done, it’s how fast can it be done... and how fast will depend almost exclusively on having the right policies and market conditions in place to achieve the shared goal of a net zero carbon automotive future.

Auto industry fuel economy and emissions: a record of achievement

[Department of Energy](#): “Over 14 percent of all the light-duty vehicles produced in 2022 had fuel economy of 35 miles per gallon (MPG) or higher, with 6.9 percent achieving fuel economy of 60 MPG or higher. In 1975, about two-thirds (67 percent) of all light-duty vehicles produced had fuel economy of 15 MPG or less, but in 2022 just 0.3 percent fell into this category.”

[EPA Trends Report](#): “New vehicle real-world CO2 emissions are at a record low and fuel economy remains at a record high.”

###