5-Min Monthly Read: October 2024

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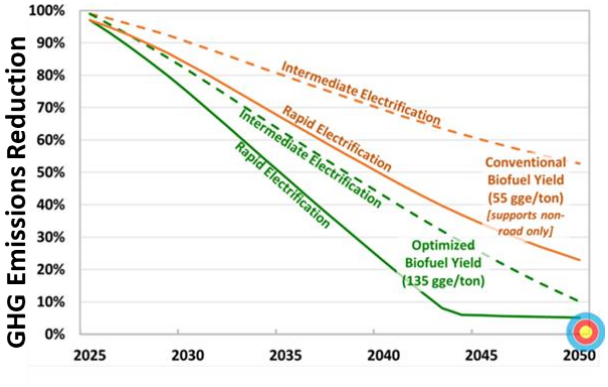
Low carbon fuels

Voting this week for the world's most powerful … fuel standard

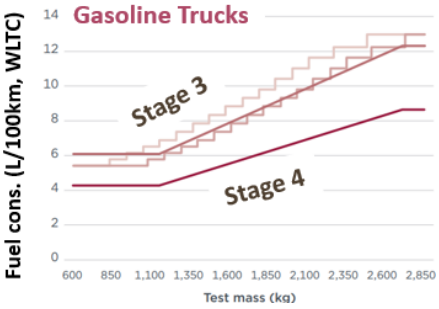
On November 8th, California Air Resources Board (CARB) will vote on the latest modifications proposed to its low carbon fuel standard (LCFS). We have summarized key elements of the proposal earlier.

White paper makes the case for increased biofuels

An analysis done by the US Council for Automotive Research (USCAR) for US shows that even with rapid electrification and conventional biofuels yield, 112 billion gasoline equivalent gallons of fuel will be required in 2050, a reduction of ~ 50% vs a no-action case. This points to the need for increased volume and yield, in addition to electrification, to meet net zero GHG emissions target by 2050.



Regulations / Reports

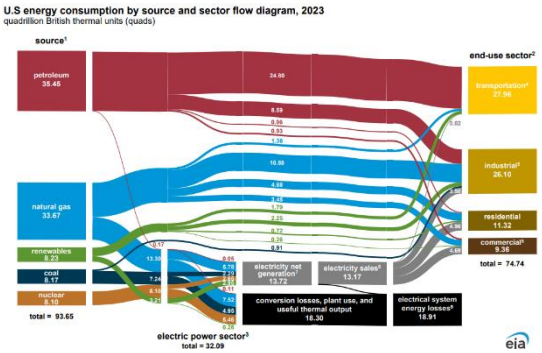


China Stage 4 Fuel Consumption Standard for Light Commercial Vehicles

China Stage 4 fuel consumption standard for LCVs require a ~ 10% reduction in fuel consumption per vehicle compared to Stage 3. Also implemented are fleet-average fuel consumption (CAFC) requirements. Several other changes are proposed and summarized here. LCVs is the fastest growing segment in China: in 2023, 242,000 new energy LCVs were registered, an increase of 46% compared to 2022.

New Energy Sankey Diagram published by U.S. EIA

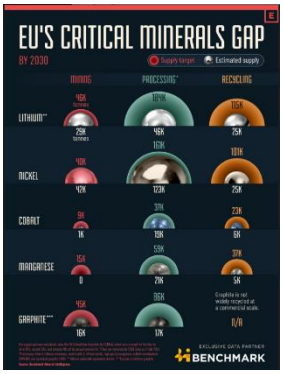
The U.S. EIA has published its October energy review. It includes an updated version of the total energy Sankey diagram of energy consumption by source and sector. Renewables and nuclear account for ~ 17.5% of primary energy consumption, while the rest is derived from fossil sources. Transportation sector is the leading use of energy, accounting for ~ 37.4%, followed closely by industry at ~ 35%.



Regulations Summary booklet

For those of you who miss the days of free Delphi booklets summarizing the regulations, Phinia has heard your call and is offering a new and improved version, free to download. This one covers heavy-duty standards across the world for both on- and off-road applications.

Electrification



EU is likely to fall short of its critical raw material goals

The EU Critical Raw Material Act, published in March 2023, set three goals –

- EU mining capacity to meet 10% of its critical mineral demands
- 40% of processing demand to be met within the bloc
- 15% of annual consumption to be met through recycling

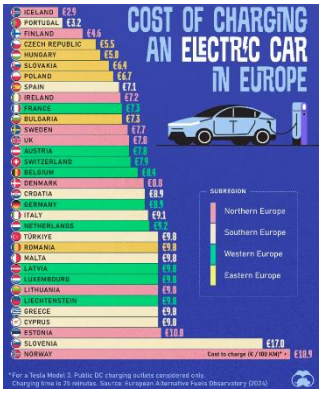
Benchmark Minerals estimates that with the exception of nickel mining, the EU is not on track to meet any other goals set by the CRM Act.

Global raw material supply can support electrification needs to 2030, but needs planning and innovation

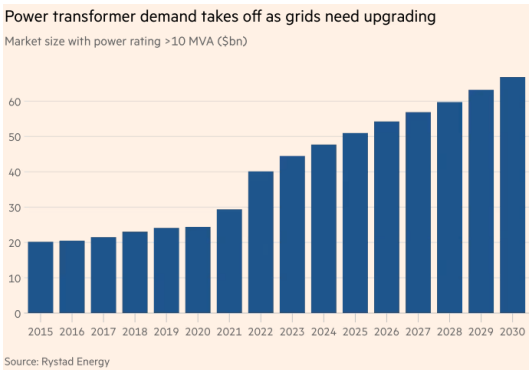
A report from the International Renewable Energy Agency is published on the status of raw materials for batteries and their projections to 2030. This is a very detailed report with various assumptions and sensitivity analyses, showing that the supply of critical raw materials can either exceed or fall short of demand in 2030, depending on continued innovation on energy density and chemistries, battery size, etc.

EV charging costs in Europe

EVMarketsReports has published a summary of the cost of charging and EV across countries in Europe. The cost ranges from a very low ~ €3 to a very high ~ €18 per 100 km of driving across the countries, pointing to the need for policies and long-term thinking for stabilizing charging costs as EV adoption grows. Contributors to high cost of charging cited are taxes and grid fees (Norway, Germany), higher energy costs due to imported energy (Slovenia), lack of access to abundant renewable energy, recouping of infrastructure investments, and high overall cost of living.



Can production of transformers keep up with electrification?



The head of Hitachi Energy has warned that the production of transformers is falling behind demand, driven by servicing the needs of data centers and emergence of AI.

Utilities warn that getting a transformer could take up to 3 – 4 years if not reserved already. Transmission equipment requirements are increasing with the increase in share of renewable electricity, which requires longer transmission distances. As with other parts of the supply chain, China is taking note of the opportunity: Chinese exports of transformers has jumped from ~ $1.5B in 2022 to ~ $2.5B in 2023.

Conferences

Here are some upcoming conferences to consider attending –

SAE Government Industry Meeting 2025, Jan 28 – 30, 2025, Washington, D.C.
2025 Government/Industry Meeting (sae.org)

Emissions Analytics Tire Emissions & Sustainability Europe 2025, February 11 – 12, Prague
Tyre Emissions and Sustainability Europe 2025

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

35th Real World Emissions Workshop, April 13 – 16, 2025, Long Beach, California
35th CRC Real World Emissions Workshop - Coordinating Research Council (crcao.org)

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

Heavy-Duty Sustainable Transport Symposium, May 7 – 8, 2025, Gothenburg, Sweden
Heavy-Duty Sustainable Transport Symposium (sae.org)

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