Pathways to Zero-Emission Freight/Infrastructure Needs for Regional and Long-Haul Trucking: American Council for an Energy-Efficient Economy Report

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The American Council for an Energy-Efficient Economy ("ACEEE") issued a report titled:

Pathways to Zero-Emission Freight: Infrastructure Needs for Regional and Long-Haul Trucking ("Report").

The Report's authors include ACEEE personnel:

- Rachel Aland – Transportation Director
- Peter Huether – Senior Research Association for Transportation
- Christi Nakajima - Senior Research Analyst, Transportation

ACEEE describes its mission as:

… Through research, education, and advocacy, ACEEE advances the efficient use of energy to rapidly and equitably spur economic well-being and combat climate change.

The Report describes the current status of:

- Zero-emission trucking technology.
- Costs associated with different investment pathways.

The Report notes as its key findings:

- States must plan beyond their borders. Zero-emission freight corridors will only work if neighboring states coordinate siting, timelines, and funding to ensure continuous, usable infrastructure and a cost-effective investment strategy.
- Prioritizing sites and aligning with utility proactive planning now will shorten deployment timelines, lower future infrastructure costs, and preserve flexibility as demand grows.
- Public dollars should prioritize shared, truck-ready charging hubs. States can maximize impact by focusing funding on shared, high throughput charging hubs that serve multiple fleets and vehicle classes and are designed for real-world freight operations.
- Charging is the lowest-risk near-term investment; hydrogen requires caution. Battery electric charging should form the backbone of early corridor investments. Due in part to significantly higher development costs, hydrogen infrastructure should be pursued only through phased, demand-tested approaches to avoid high-cost, underutilized assets.

- Freight electrification should deliver visible, meaningful community benefits. Targeting early investments in communities with the highest diesel exposure ensures that corridor development improves air quality and public health while reducing emissions.

Statistics found in the Report regarding medium- and heavy-duty vehicles ("MHDVs") include:

- Produced in 2022:
- 23% of transportation greenhouse gas emissions.
- Over half of on-road nitrogen oxide and direct particulate matter 2.5 (PM2.5) emissions, despite only representing 4%–6% of the on-road fleet.
- Greenhouse gas emissions from MHDVs have grown 76% from 1990.

A summary of the Report can be found here.