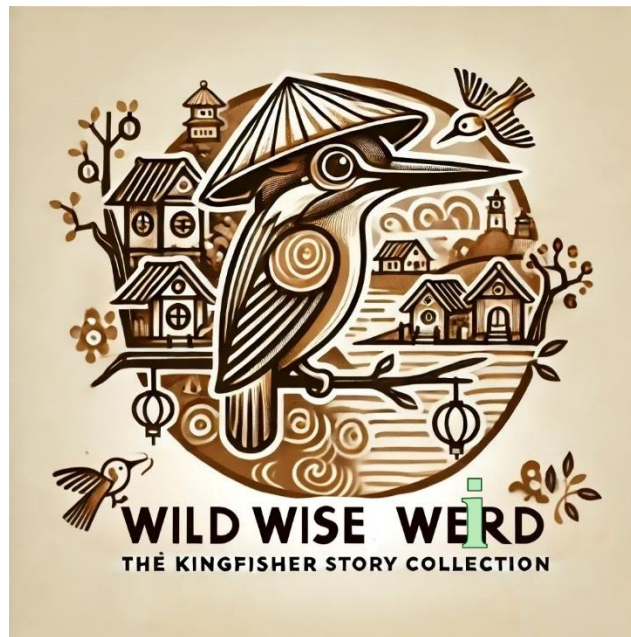


Electric Trucks, Unequal Gains: Rethinking Justice in the U.S. Freight Transition

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“There must be a plan of action because delaying will be dangerous. Kingfisher is unsure if he is too worried, but every time he counts the fish in the pond, the number of fish seems to decrease. The hot and stressful weather also makes his feathers molt and grow slower. The situation seems life-threatening!”

In “GHG Emissions”; *Wild Wise Weird* [1]



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A recent study by McNeil et al. [2], published in *Nature Sustainability*, explores the national health and equity impacts of electrifying heavy-duty trucks in the United States. The findings underscore both the promise and limitations of this transition in addressing long-standing air pollution disparities.

Diesel-powered freight trucks are responsible for thousands of premature deaths annually, with their emissions disproportionately affecting disadvantaged communities (DCs) and people of color [3-6]. With support from the Inflation Reduction Act (IRA) and its Justice40 Initiative—which aims to direct 40% of clean energy benefits to DCs—the electrification of Class 8 trucks has been framed as a path toward environmental justice [7,8].

Using sophisticated national-scale models, the authors compared emissions from diesel trucks to those from electric trucks powered by an evolving energy grid through 2050. While electrification consistently reduces overall air pollution and related mortality, the study reveals that benefits are not equitably distributed. In fact, relative disparities in pollution exposure increase over time, particularly for Black communities, even as absolute exposure levels decline.

The study also finds that electrifying short-haul “drayage” corridors—those near ports and urban centers—offer more immediate and equitable health benefits than long-haul routes. By 2030, 100% of drayage vehicle miles traveled (VMT) are projected to yield net health gains in DCs, compared to only 84% of long-haul VMT. The IRA’s renewable energy incentives play a crucial role in maximizing these benefits: under favorable energy cost scenarios, air pollution-related deaths in DCs could drop by 84% by 2050, compared to 35% without such support.

However, a uniform approach to truck electrification may fall short of meeting Justice40’s equity benchmarks. Many high-emitting power plants that support electric truck charging are located near already burdened communities, complicating the justice narrative. The authors recommend a more targeted, corridor-specific strategy that prioritizes investments where pollution burdens are highest.

Truck electrification marks a significant step toward a cleaner, healthier future—but without deliberate planning, it may perpetuate or even exacerbate existing environmental injustices. A just energy transition requires more than zero-emission vehicles; it demands policies that directly confront the inequities rooted in both transportation and energy systems, reinforcing the inseparable link between human well-being and environmental integrity [9,10].

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