ASSOCIATION OF AMERICAN RAILROADS

FREIGHT RAILROADS & ELECTRIFICATION

Freight railroads are a highly environmentally efficient mode of transportation, moving a single ton of freight nearly 500 miles on one gallon of fuel. Railroads' ability to move large quantities of goods on limited amounts of fuel makes them a key player in sustainable logistics and reducing the environmental impact of freight transport.

Despite accounting for less than 1% of total U.S. greenhouse gas emissions, the freight rail industry has faced increasing pressure to decarbonize its operations.

YOUR ULTRA BRIEF

- **Rail** moves freight efficiently with minimal emissions.
- **Catenary** systems are costly, risky, and unrealistic.
- **Railroads** pursue cleaner fuels and zero-emission tech.

One often proposed approach is the creation of a nationwide overhead catenary system. This purported solution, however, overlooks the significant issues and costs associated with the development of such a system. Proponents fail to consider several key issues related to the construction and operation of such a system, including:

- **Decreased resiliency**: An overhead catenary system would introduce multiple single points of failure in freight rail operations, each susceptible to extreme weather events or simple everyday hazards like falling trees. Any interruptions in the rail network would have significant impacts on the global supply chain.
- **Vast electrical power consumption**: Powering a nationwide catenary system would require an additional 40-50 TWh of energy production, equivalent to the output of six new nuclear power plants, 11 million new solar panels, or 1,800 new utility-scale wind turbines. The current electric grid cannot support this level of demand.
- **Lengthy permitting timelines**: Building the catenary system would necessitate acquiring environmental permits under multiple federal and state statutes, a process that could take years, possibly decades.
- **Enormous construction costs**: Estimates suggest that fully electrifying the 139,000 miles of track in the U.S. would require $1.1 trillion – or 47 years of combined net income for all six Class I railroads.
- **New work hazards:** The introduction of high-voltage wiring would pose additional risks to both railroad employees and third parties.
- **Misconceptions in comparisons to international counterparts**: International examples of electrified freight rail are not directly applicable, as most foreign catenary rail systems are for passenger operations and built in partnership with governments unlike the privately funded and maintained U.S. freight rail network.

Class I railroads are pursuing decarbonization through other means, such as increasing the use of biodiesel and renewable diesel in the short term and researching battery electric and hydrogen-powered locomotives for the long term. Investments in these alternative approaches are more likely to result in actual emissions reductions.