

Welcome to “RailBite” #5 from Solutionary Rail
Electrify America’s railroads ~ Open up the rail corridors for green-energy transmission!



Solutionary Rail - Deep Cuts to Greenhouse Gas Emissions

Finding solutions in the face of climate change is one of our fundamental motivations.

Transportation accounts for 30% of United States greenhouse gas emissions. If we electrify our transportation using renewables, we can cut this deeply – especially if electrifying the railroads is prioritized.

- Steel wheels rolling on steel rails require 1/3 the energy of rubber tires on pavement – trains are much more energy-efficient than trucks and cars, regardless of the fuel source.
- The railroad – freed from diesel – could be powered by renewable electricity via overhead power lines, with very low life-cycle greenhouse gas emissions.
- As a bonus, additional power lines can be installed above the ones powering locomotives, with the sole purpose of transmitting renewable electricity from the rural areas where it’s produced to towns and cities where it’s needed.



Electrify the trains: Electric cars and trucks will require resource-intensive battery manufacture and disposal. Electrifying the railroad, on the other hand, can take advantage of the fixed infrastructure of rail transport; like some bus lines in cities today, electric locomotives could receive electrical power by catenary wire accessed by a pantograph or an electrified third rail. An additional advantage of electric locomotives results from equipping them for regenerative braking – different from today’s diesel-powered trains equipped for dynamic braking, where energy is lost as heat. Electric locomotives with regenerative braking can return electrical power to the electrical grid, increasing the efficiency of rail transport.



Transmission lines for renewable electricity – a bonus from railroad electrification: Wind turbines, photovoltaic arrays, geothermal sources, and other technologies are harnessing renewable energy for rural electrical cooperatives, small-town America

enterprises, and the tribes. What’s missing is transmission capacity to metropolitan demand centers. Solutionary Rail can fill that gap, by adding an additional set of High Voltage Direct Current power lines above those powering the trains. This interconnection over a vast landscape can solve the problem of the inherent local variability of sunshine, wind and tides.

A further bonus: Electrifying America's rail system will attract more freight and passengers, allowing the railroad to better serve urban, rural, small town, and tribal economies. **The air will be much cleaner for trackside communities. The whole world will benefit from megatons less CO₂, methane, and particulate emissions from America's overall transport system!**

More at www.solutionaryrail.org/factsnfalsesolutions and www.solutionaryrail.org/video.

We hope legislators and policymakers find our “Railbites” helpful regarding options for electrifying our transportation infrastructure. **Please use us as a resource!** Contact info@solutionaryrail.org or 206-408-8058.