

I. Electrification.

Only in the Northeast Corridor between Washington and Boston do we have an electrified mainline railroad operation in the United States. Although railroads throughout the world are powered by electricity, the U.S. relies almost totally on diesel-powered trains.

A central point in our rail advocacy is electrification of railroad mainlines in the United States. Because of its worldwide use, the technology is mature and available without research and testing. Sometimes I am asked, "Couldn't we upgrade the nation's rail system without electrification?" And the answer is, "Yes we could." But there are solid reasons for making it a part of our vision for the future of mainline railroads in America.

Substituting electricity to propel trains instead of diesel fuel has many advantages. It can help wean the nation's transportation sector from near total dependence on oil. It can open new markets for renewables such as wind, hydro, and geothermal energy. It is far more efficient. An electric locomotive is about 95% energy efficient compared to a diesel locomotive around 35-40% efficient.

American railroads are interested in reducing their use of diesel fuel, because of its high cost and vulnerability to supply disruptions and price spikes. But at this time, because of the very low prices of natural gas, the railroads seem more interested in using liquefied natural gas as a diesel substitute.

This is sub-optimal in many ways, and RAIL Solution has been helping get the word out about the drawbacks of this approach. The far better way, that still benefits from low gas prices, is to burn the cheap gas in power plants making electricity, then use the electricity to power the trains. This whole issue is explored in greater depth, if you are interested, in a recent article I did for *Progressive Railroading*:
<http://www.progressiverailroading.com/mechanical/contributed/Gas-leading-at-halftime-but-electrification-may-stage-a-comeback--43437>