Decarbonizing Rail Transportation

Revolutionizing the Future of Freight and Stimulating Job Growth (#Freight2030)

President Biden and Congress have pledged to build a clean energy economy, creating millions of jobs while curbing the effects of climate change. With emerging technologies to enable a sustainable future, the transportation sector is at a critical inflection point.

The time to act is now.

Freight rail can and should be a centerpiece of our domestic policy agenda with the ability to create meaningful jobs, stimulate economic growth, and advance climate action.

With over 140,000 miles of track across the U.S. freight network, investment in the future of rail benefits both urban and rural communities. As such, rail is an important player in driving U.S. economic growth and job creation, while delivering the most sustainable solutions for moving people and goods today and into the future. The U.S. has the power to create this future, and the rail industry will help build the American clean energy economy.

To bolster the Freight 2030 vision of a competitive and sustainable American freight transportation network, Wabtec proposes the creation of a public-private partnership to create a Freight Rail Innovation Institute. This collaboration will create and fund technology research, demonstration, and manufacturing initiatives that drive measurable action toward significantly increasing freight rail utilization, efficiency, and decarbonization throughout the rail network, while creating hundreds of thousands of jobs. In partnership with government, industry and academia – including Genesee & Wyoming railroad and Carnegie Mellon University – Wabtec proposes establishing centers of excellence in Green Power, Network Capacity, and Advanced Network Logistics.

An investment over the next 5 years is necessary to kickstart the Freight 2030 vision. With government support, Wabtec and its partners can accelerate the development and adoption of key technology advancements to ensure that freight rail stakeholders are willing to invest in a sustainable and GHG-free freight rail network.

To achieve a clean-energy economy quickly and at scale, while stimulating economic growth and jobs, Congress and the Executive Branch should help to create, coordinate, and co-fund the Institute for Freight Rail Innovation. Maximizing the freight rail network and shifting to clean power requires upfront intellectual firepower and capital investment, and the U.S. ought to have a stake in its development and become the leader in eliminating GHG emissions from freight transport. **Let's build the future of freight rail together.**

Did You Know?

472 miles on **1** gallon of fuel

A single freight train can move a ton of freight **472 miles on one gallon of fuel**. A truck only gets 134 miles per ton out of a gallon. That is 1,000 gallons of fuel saved per carload.

< **1**% Freight CO_2

Rail moves 40% of freight (per ton-mile) and accounts for **less than 1% of total U.S. GHG emissions.**

~1.1 million **Jobs**

Operations and capital investment of America's major freight railroads supported **~1.1 million jobs** (nearly eight jobs for every railroad job), **$219 billion in economic output** and **$71 billion in wages**.

The Importance of Freight Rail

Rail has been the cornerstone of the global transportation system and economy for more than a century – moving billions of tons of freight and billions of people every year.

Today, rail represents the most cost-effective, energy-efficient, and safest mode of moving people and freight on land. Current trends indicate that freight and passenger activity will more than double by 2050 as the sector pushes for cleaner, more energy efficient transportation. Other governments in Europe and Canada are building momentum with advanced technologies for freight rail. The U.S. needs to regain its position as the global leader in eliminating GHG emissions and advancing the shift to rail.

Working with key stakeholders, we can:

- Create zero emission battery and hydrogen hybrid locomotives.
- Increase freight railroad utilization by more than 50%.
- Reduce safety incidents by 50%, as compared to road accidents.
- Create nearly 250,000 jobs[1] stemming from the transportation and manufacturing sectors.

Rail's Continued Role in Building a Clean Energy Economy

Our Freight 2030 vision is to expand the use of freight rail, accelerate the reduction of national GHG emissions, reduce road congestion in our cities, and make transportation in the U.S. safer for everyone.

We believe the U.S. with its unparalleled workforce is well poised to build the freight rail network of the future. Wabtec and its partners have a two-pronged strategy to help achieve the clean energy economy envisioned by the **Build Back Better** plan.

1. Efficient Utilization: Rail is clearly the cleanest, safest, and most efficient way to move goods over land. Studies indicate about 85% of rail primary corridor mileage is underutilized. With advancements to current signaling systems and network efficiency solutions, the rail industry can increase the capacity of the network by 50% without adding a single piece of track.

Moving freight by rail instead of trucks lowers GHG emissions on average by 75%. If 50% of truck traffic over 500 miles was moved to rail, annual GHG would fall by approximately **60 million tons per year**. Freight rail causes 22 times less deaths and injuries per year than trucking. A single freight train can replace several hundred trucks, making our freeways less congested and safer for motorists. Shifting freight from trucks to rail also reduces highway wear and tear and the pressure to build costly new highways.

2. Decarbonization: The rail industry is on the cusp of technological advancements required to power locomotive fleets with alternative green energy sources, such as batteries, and eventually, hydrogen fuel cells. For each diesel-powered locomotive converted to alternative energy sources up to **3,000 tons of CO_2 per year** can be eliminated, which will be imperative to achieving a sustainable transportation network.

Working closely across industry, academia, and government with the nation's top scientists, engineers, and policymakers, we believe accelerating a transition to a more utilized, efficient, and GHG-free rail network is achievable. Laying the groundwork now is critical for the future sustainable transportation of goods.

With the combination of improvements in freight rail utilization and developments in advanced locomotive technology, the Freight 2030 vision would **enable the elimination of up to 120 million tons of GHG emissions per year.**

Wabtec is the global leader in innovative rail technologies and solutions. Wabtec has been a leader in research and rail manufacturing for over 150 years and has the vision and ability to achieve a zero-emission rail system in the U.S. and around the world. Wabtec's 23,000 locomotives globally move more than 20% of the world's freight. Headquartered in Pittsburgh, PA, Wabtec operates in over 50 countries with ~27,000 employees worldwide, including over 10,000 in the U.S.

Carnegie Mellon is the nation's leading university in artificial intelligence and academic research in robotics and autonomy. CMU has sparked innovations that transformed transportation, infrastructure, agriculture and manufacturing, and is at the forefront of education and future of work initiatives.

Genesee & Wyoming (G&W) is the largest owner of short line and regional freight railroads, the 'first and last mile' to the customer. G&W's 113 North American railroads transport 1.5 million annual carloads for 3,000 customers over 13,000 track-miles across 42 states and four Canadian provinces. G&W is a safety leader in the rail industry and at the forefront of efforts to apply new technologies to drive more freight traffic to rail.

[1] Direct, indirect, and induced jobs.