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## THE ECONOMIC IMPACT OF A RAILROAD SHUTDOWN

Using historical analysis from the Federal Railroad Administration, AAR's Policy and Economics team found that lost economic output due to a nationwide rail shutdown **could be more than \$2 billion every day.**



## EXECUTIVE SUMMARY

America's freight railroads serve nearly every agricultural, industrial, wholesale, retail and resource-based sector of our economy. Operating over a nearly 140,000-mile network in 49 states, they give their customers competitive access to global markets and greatly improve our standard of living. Freight railroads are indispensable to our economy.

That's why a freight rail shutdown idling more than 7,000 long-distance Class I trains per day — in addition to short line, passenger and commuter trains — would be devastating. Today, tens of thousands of rail customer locations, from sprawling auto plants to mom-and-pop retailers, depend on railroads to deliver raw materials and finished products.

If these and other rail shipments were halted, the loss in economic output would likely be at least \$2 billion per day.

In the first half of 2022, more than 75,000 carloads and intermodal containers and truck trailers began their rail journey each day. For most rail customers, a switch in the short term to trucks or barges to replace rail service would be costly and disruptive. About 467,000 additional long-haul trucks *per day* would be needed to handle the freight. Currently, neither the trucks nor the truck drivers necessary to meet this demand are available. In addition to freight impacts, a freight rail shutdown would halt most passenger and commuter rail services.

- **39,000 shipping containers and truck trailers:** A single container or trailer on a railcar can contain 2,000 UPS packages, tens of thousands of bananas or hundreds of flat-screen televisions. A rail shutdown would slow or halt these shipments.
- **5,300 carloads of raw plastics, fertilizers and other chemicals:** A single loaded railcar of plastic pellets can make around two million two-liter soda bottles, while a railcar of fertilizer is enough to treat around 4,500 acres of farmland. Chemicals are essential to public health, clean water, our domestic food supply stability and reliable electricity generation. A rail shutdown would quickly and directly impact our everyday lives.
- **6,300 railcars of food and farm products:** A single loaded railcar contains enough wheat for 260,000 loaves of bread. Rail also transports one-third of U.S. grain exports, which are especially important today considering global grain disruptions caused by the war in Ukraine.
- **More than 2,000 carloads carrying 75% of all newly finished automobiles:** Every day, tens of thousands of motor vehicles begin their rail journey to car dealerships. Since auto-makers typically use just-in-time production techniques and keep little inventory on hand, an interruption in rail service would quickly disrupt auto production.
- **Passenger and commuter rail services operate mainly on freight railroad tracks:** Freight railroads own and maintain nearly 97% of the tracks on Amtrak's nearly 22,000-mile system. A freight railroad shutdown would devastate Amtrak operations just as ridership is starting to return. Since half of commuter rail systems operate at least partially on tracks or rights of way owned by freight railroads, a shutdown would also disrupt hundreds of thousands of commuter daily rail trips across the country.

**Lost economic output due to a nationwide rail shutdown could be more than \$2 billion every day. Economic damage from a railroad shutdown could include:**



**Retail product shortages**



**Lost jobs**



**Widespread plant shutdowns**



**Higher costs for consumers and businesses**



**More trucks on the highway and more CO2 in the air**



**Disruptions to hundreds of thousands of daily commuter and Amtrak trips**

## FREIGHT RAILROADS KEEP THE ECONOMY ON TRACK

America's freight railroads serve nearly every agricultural, industrial, wholesale, retail and resource-based sector of the economy. Operating over a nearly 140,000-mile network in 49 states, railroads' reliability and cost-effectiveness provide their customers with a competitive advantage globally and significantly improve America's standard of living. Moreover, many passenger railroads, including Amtrak, depend critically on freight railroads. Freight railroads:

- ✓ **Provide high-paying jobs:** In 2020, the average U.S. Class I freight [rail employee](#) earned wages of \$95,700 and fringe benefits of \$40,000, for total compensation of \$135,700. By contrast, the average wage per full-time equivalent U.S. employee in 2020 was \$71,000 (just 74% of the rail figure), and the average total compensation was \$87,000 (64% of the rail figure).
- ✓ **Grow the U.S. economy:** An October 2018 [study](#) from Towson University found that freight railroads sustain more than one million additional jobs at firms that provide goods and services to railroads or that are recipients of spending by the employees of railroads and their suppliers. Millions of others work in industries that are more competitive in the global economy thanks to freight railroads' affordability and productivity.
- ✓ **Connect America to the global market:** Without railroads, Americans could not participate in the global economy as we do today. [International trade](#) accounts for around 40% of the carloads and intermodal units that U.S. railroads carry.
- ✓ **Provide a solution to climate change:** U.S. freight railroads, on average, move one ton of freight nearly [500 miles per gallon of fuel](#). On average, railroads are three to four times more fuel-efficient than trucks, meaning that moving freight by rail instead of truck lowers greenhouse gas emissions by up to 75%.
- ✓ **Reduce highway congestion:** Because a single train can replace several hundred trucks, railroads reduce highway gridlock and the need to spend taxpayer funds on highway construction and maintenance.

## ESTIMATED COST OF A NATIONWIDE FREIGHT RAILROAD SHUTDOWN: MORE THAN \$2 BILLION A DAY

Several factors would determine the severity of a shutdown by rail workers, including the shutdown's scope (e.g., how widespread job stoppages were, what facilities were targeted, if there were secondary picketing and so on) and how much warning railroads and their customers receive.

In 1992, the Federal Railroad Administration (FRA) used an econometric model to estimate the impact of a national rail shutdown on employment and economic output. At that time, the FRA concluded that a two-week, nationwide railroad shutdown would cause 570,000 layoffs in rail-served industries and result in \$14 billion in lost output — or \$1 billion per day.

The costs of a rail shutdown would be much higher today.

First, there has been significant inflation since 1992: the constant-dollar GDP chain-weighted deflator, a useful measure of economy-wide price changes, rose 76% from 1992 through 2021. Second, supply chains are considerably more streamlined (or just-in-time delivery) today than back then, leaving little excess capacity or “wobble room,” as has been demonstrated over the past 18 months of supply chain disruptions. Third, today's U.S. economy is far more integrated into global markets than in the early 1990s. This integration increases the importance of efficient and cost-effective freight movements over long distances to and from ports and the interior of the country. Industries that would be deeply affected by a rail shutdown account for vast swaths of the U.S. economy. Just a few examples:

- The **American Iron and Steel Institute** [says](#) the American iron and steel industry accounts for more than \$520 billion in economic output.
- The **American Chemistry Council** [reports](#) the chemical industry is a \$517 billion enterprise that supports over 25% of U.S. GDP and creates more than half a million American jobs.
- The **Alliance for Automotive Innovation** [says](#) that the direct, indirect and induced jobs supported by the auto industry led to \$650 billion in paychecks for millions of workers across the country.
- The **National Mining Association** [says](#) mining contributes \$200 billion to U.S. GDP. A rail shutdown would materially reduce their output and contribution to the economy.

### The economic harm of a railroad shutdown would be severe and immediate.

- Daily lost economic output due to a nationwide rail shutdown could be more than \$2 billion.
- The lost output would harm manufacturers, distributors, retailers and consumers; it would mean increased fuel consumption and greenhouse gas emissions; and it would have a strong negative impact on our nation's taxpayer-funded highway system.

## IF A RAILROAD SHUTDOWN HAPPENS, OTHER TRANSPORTATION MODES CAN'T TAKE UP THE SLACK

Railroads operate in an intensely [competitive](#) transportation marketplace. Firms rarely rely exclusively on rail transportation. Over the long term, most firms that use rail transportation could modify their distribution patterns or production processes so they would not have to use railroads as much as they do today. For most of those firms, though, switching on short notice to trucks or barges, or changing their production processes to reduce or eliminate the need for rail service, would, at best, be extremely costly and disruptive. In many cases, it would be completely impractical.

There are several reasons for this. First, there simply aren't enough long-haul trucks to carry all existing rail traffic. In 2021, Class I railroads generated 1.534 trillion ton-miles of traffic or an average of 4.20 billion ton-miles per day. Based on the reasonable assumption that a typical long-haul truck carries approximately 18 tons of freight and transports that freight 500 miles daily, a truck generates approximately 9,000 ton-miles daily.

Based on these assumptions, it would take approximately 467,000 additional long-haul trucks *per day* to move all railroad freight. According to the U.S. Department of Transportation [Federal Highway Administration](#), approximately 2.8 million truck tractors are in operation in the United States, carrying all types of freight. Only some are involved in long-haul service. An additional 467,000 long-haul trucks would significantly increase the existing long-haul truck fleet. It would take years of concerted effort before the long-haul truck fleet could grow by that much. Growing the highway system sufficiently to handle all of today's rail freight could take many decades and billions of taxpayer dollars.

According to the [American Trucking Associations](#), there is already a shortage of approximately 80,000 truck drivers. Consequently, even if trucks were available, there aren't enough qualified people to drive them. Finding enough drivers has been a serious problem for trucking for decades. Even if a rail shutdown were limited in scope — say, to a specific region — there would not necessarily be enough extra truck drivers to handle the freight that would otherwise move by rail.

The bottom line is that, in the event of a railroad shutdown, trucks could not take more than a small fraction of what would otherwise move by rail in the short term.

Even if there were somehow enough trucks and drivers to manage the significant volume of freight no longer handled by rail, the social costs of the additional truck transport would be huge. A single train can carry the freight of several hundred trucks. Adding hundreds of thousands of additional trucks to our highways would make highway gridlock much worse and quickly cause enormous additional highway damage. In addition, the additional trucks required to transport the freight no longer carried by railroads would consume an estimated 36 million additional gallons of fuel each day. That would mean an extra *800 million pounds* of CO<sub>2</sub> into the atmosphere daily. It would also mean longer commutes.

Barges may be able to pick up some of the slack in areas with navigable rivers. In the short run, the types of freight for which appropriate barges are likely to be available can also be limited. Barges and waterways also have capacity constraints, especially in the short term. Switching large amounts of freight to barges could not happen immediately. Furthermore, taxpayers would have to cover the cost of dredging harbors and waterways.

It would take about 467,000 additional long-haul trucks *per day* to deliver all the freight carried by railroads.

**There simply aren't enough trucks or truck drivers to handle that volume.**

Even if there were, that would mean an extra 800 million pounds of CO<sub>2</sub> into the atmosphere each day.

## A SHUTDOWN WOULD IMPACT MULTIPLE SECTORS

**INTERMODAL:** On average, each day, around 39,000 shipping containers and truck trailers begin their rail journey, carrying the things we buy every day: electronics and power tools, clothing and medical supplies, furniture and food.

Items found on retailer's shelves most likely relied on [intermodal](#) rail service to help get them there. Intermodal is also crucial for farm and industrial products, such as auto parts, specialized grain and many chemical products. This is also true for home deliveries consumers rely on. E-commerce firms are heavy freight rail users. UPS, for example, may be the single largest rail customer. A single intermodal container or trailer railroads carry for UPS could contain 1,800 to 2,000 packages. A train with 100 containers or trailers could have 200,000 UPS packages headed for our doorsteps.

Anything that moves in intermodal rail service could move by truck instead. As noted above, though, there aren't nearly enough trucks or truck drivers in the near term to pick up the slack if rail deliveries were halted or slowed by a shutdown. Even if there were enough trucks and drivers, the costs of shipping the freight would be much higher.

Retailers who depend on rail intermodal know it would be impossible to keep their shelves stocked in the event of a shutdown. The Retail Industry Leaders Association recently wrote to the White House, "A [rail shutdown] at this juncture would be devastating to...the millions of American retailers and other businesses that depend on rail."

Roughly half of intermodal rail volumes are tied to international trade. Recognizing that a shutdown would cause serious harm to our nation's ports, the American Association of Port Authorities recently wrote, "U.S. freight railroads link much of the economy, including America's ports, meaning a network shutdown of any length would have far-reaching effects."

**FOOD & FARM PRODUCTS:** If it's on your table or in your pantry, there's a good chance railroads helped get it there.

According to the U.S. Department of Agriculture, railroads account for more than 20% of grain shipments and a much higher percentage of those shipments that must move over a long distance. Each year, railroads haul around 1.6 million carloads and intermodal units of wheat, corn, soybeans, and other [agricultural products](#), plus another 1.5 million units of animal feed, beer, birdseed, canned produce, corn syrup, flour, french fries, frozen chickens, sugar, wine and countless other food products. U.S. railroads ship around 6,300 carloads daily of food and farm products, plus hundreds more intermodal containers and trailers.

An average rail carload of wheat is enough to make 260,000 loaves of bread; each carload of corn is enough to supply the lifetime feeding requirements of some 36,000 chickens; each carload of soybeans makes enough soybean meal to feed 22,000 pigs for a day and each carload of corn oil contains more than 23,000 gallons. We can't feed ourselves for long without railroads.

Rail is especially critical during fall harvests. An interruption in rail service during harvests would quickly result in exhausting local grain storage capacity. This, in turn, would cause grain elevators to either refuse deliveries by farmers or resort to on-ground storage, which results in increased spoilage.

Finally, a rail service interruption would result in a loss of U.S. export sales. Today, railroads move approximately one-third of U.S. grain exports. A rail shutdown would put these export movements — which are even more important now given the Ukraine conflict — at risk.

**CHEMICALS:** Because end users of chemicals are spread throughout the country, huge volumes of chemicals must be transported each year.

According to the American Chemistry Council, railroads transport approximately 19% of [chemicals](#). On average, around 5,300 carloads of chemicals begin their rail journey daily, along with hundreds of intermodal containers carrying various chemicals.

Chemicals are an excellent example of how railroads' scale enables efficiencies elsewhere. A single loaded railcar of polyethylene terephthalate (a type of plastic) is enough to make around two million two-liter soda bottles. Soda ash, another chemical, is used in various manufacturing processes, with glass manufacturing the most important. One rail carload contains enough soda ash to make 8,400 auto windshields. Fertilizers are another major category of chemicals carried by rail. Railroads move more fertilizer than any other transportation mode, according to the Fertilizer Institute. One rail carload of nitrogen fertilizer is enough to treat around 4,500 acres of farmland.

The chemical industry recognizes the harm a rail shutdown would bring. In [a report](#) a few years ago, the American Chemistry Council wrote, "The economic and social costs resulting from a major rail service disruption would be long-lasting and widespread, hitting many sectors of the economy. This could include major losses in the chemical industry...[C]hemicals are critical inputs to goods and services that are essential to public health, the stability of our domestic food supply, clean water in our homes, schools and hospitals, and the reliable provision of electric power; a rail shutdown would quickly and directly impact our everyday modern lives."

**COAL:** Coal produces more than 20% of America's electricity, and railroads haul 70% of that coal.

On average, railroads originated 9,300 carloads of [coal](#) each day in the first half of 2022. On average, each rail carload has enough coal to generate a day's worth of electricity for 7,300 homes. In the event of a rail shutdown, coal transported by rail would have to be hauled by truck or barge, which may not be practical in the short term.

Although utilities that generate electricity from coal typically maintain stockpiles of coal equivalent to 30 or more days of consumption, a rail shutdown would immediately impact the coal mining industry. Because coal mines typically only have storage capacity equal to a few days of output, many of the approximately 38,000 employees of the coal mining industry could face layoffs in the early stages of a rail shutdown.

Recognizing the harm a shutdown would cause, the Edison Electric Institute, the major trade association for the U.S. electric utility industry, wrote the White House, "U.S. freight rail is critical to...our sector, and a network shutdown of any length would have far-reaching effects not only on the economy but also on our ability to source critical equipment and material as we invest in grid infrastructure both for resilience and the clean energy transformation."

**CONSTRUCTION:** In the first half of 2022, more than 1,600 carloads of lumber and paper products — including wood to build our homes, newsprint and magazine paper, cardboard for packaging, and scrap paper for recycling — began their rail journey each day on U.S. railroads, on average.

That doesn't include the large amounts of [forest products](#) that move in intermodal containers. A rail shutdown would quickly bog down supply chains, especially since many forest products originate in Canada but are consumed in the United States, getting from there to here by rail.

**AUTOMOTIVE:** Freight rail transports around 75% of the finished new cars and light trucks purchased in the United States each year.

In a typical year, freight railroads carry 1.8 million carloads of [motor vehicles and parts](#), including more than a million carloads of finished vehicles. So far in 2022, volumes are down because shortages of microchips have held back auto production. But even this year, more than 2,000 rail carloads of finished vehicles have started their rail journey each day, on average. Depending on the railcar design and the type of motor vehicle, each railcar generally holds 8 to 21 finished vehicles. This means tens of thousands of motor vehicles begin their rail journey to car dealerships daily. A single train sometimes carries hundreds of finished vehicles.

The motor vehicle industry has traditionally operated using just-in-time production techniques, keeping little inventory on hand. In many cases, the parts shipped into a plant in the morning emerge as finished vehicles that evening. An interruption in rail service would severely impair these production processes. Even a local shutdown could majorly impact the motor vehicle industry. This is especially true if a regional rail shutdown occurs near vehicle production and parts manufacturing areas.

**PASSENGER:** Freight railroads provide a crucial foundation for passenger rail.

Amtrak owns approximately 730 route miles, primarily in the Northeast Corridor. Nearly all the remaining 97% of Amtrak's nearly 22,000-mile system consists of tracks [owned and maintained by freight railroads](#). Of all the miles that Amtrak trains travel each year, close to 70% are on tracks owned by someone else, mainly freight railroads. Freight railroads also furnish other essential services to Amtrak in some regions, including train dispatching, emergency repairs, station maintenance and, in some cases, police protection, claims investigation and communications capabilities. Thus, a freight railroad shutdown would devastate Amtrak operations just as ridership is starting to return.

In addition, although the pandemic has reduced commuter rail trips significantly from what they were in the past, hundreds of thousands of commuter rail trips still occur each weekday in cities across the country. Since half of commuter rail systems operate at least partially on tracks or rights of way owned by freight railroads, a freight railroad shutdown would disrupt commuter rail services across the country.