STATEMENT OF

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BEFORE THE

U.S. SENATE COMMITTEE
ON COMMERCE, SCIENCE AND TRANSPORTATION

HEARING ON
CLIMATE CHANGE IMPACTS ON THE TRANSPORTATION SECTOR

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The Association of American Railroads (AAR) appreciates the opportunity to address the issue of climate change and transportation. AAR members account for the vast majority of freight railroad mileage, employees, and traffic in Canada, Mexico, and the United States.

Few topics today generate as much debate as climate change. I respectfully suggest, however, that one area where everyone can and should agree is that greater use of rail transportation offers a simple, cost-effective, and immediate way to meaningfully reduce greenhouse gas emissions without potentially harming the economy.

Given this fact, I also respectfully suggest that policymakers should take steps to attract more freight and passengers to railroads and expand the substantial greenhouse gas and other public benefits of rail transportation — for example, by implementing an investment tax credit for rail infrastructure capacity expansion projects; by encouraging greater use of rail-related public-private partnerships; and by adequately funding Amtrak to allow it to bring the Northeast Corridor to a state of good repair, procure new rolling stock, and make additional capital improvements and maintenance over its network.

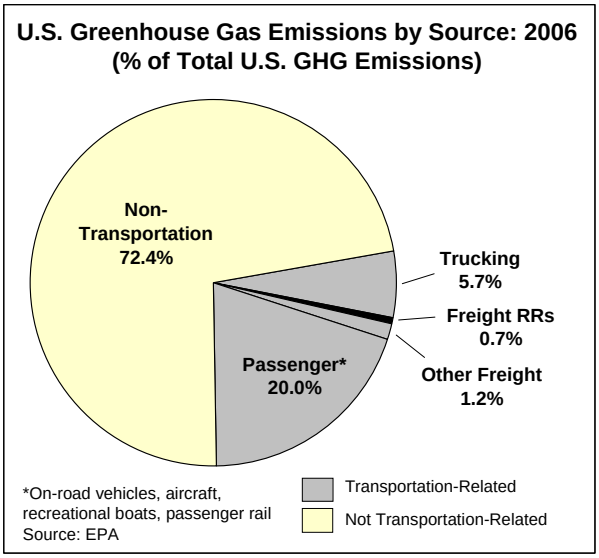
Freight and passenger railroads have a strong record of success in meeting our nation's transportation needs in an environmentally-friendly fashion. They are committed to pursuing further technological and operational advancements that will lead to continued tangible improvements in fuel efficiency, mobility, greenhouse gas emissions, and air quality.

Railroads Are the Most Fuel-Efficient Form of Surface Freight Transport

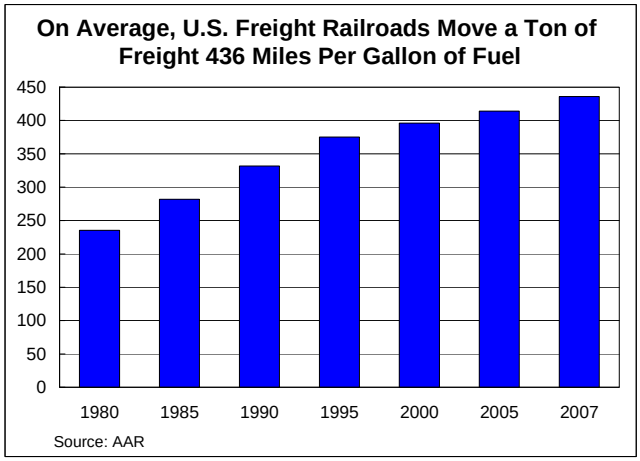
According to EPA data, in 2006 total U.S. greenhouse gas emissions were 7,054 teragrams[1] of carbon dioxide equivalents, with transportation accounting for 28 percent of the total. The vast majority of transportation-related greenhouse gas emissions are directly

[1] A teragram is a million metric tons or 1.1 million short tons.

correlated with fossil fuel consumption: the higher the fuel consumption, the greater the greenhouse gas emissions.



Freight railroads, though, are the most fuel efficient mode of surface transportation. In 2007, railroads moved one ton of freight an average of 436 miles per gallon of fuel — roughly the distance from one end of Nebraska to the other, or from Boston to Baltimore.



Indeed, on a ton-miles[2] per gallon of fuel basis, freight railroads are three or more times more fuel efficient than trucks. That means that every ton-mile of freight that moves by rail instead of truck reduces greenhouse gas emissions by two thirds or more.

The railroad fuel efficiency advantage helps explain why freight railroads account for just 2.6 percent of transportation-related greenhouse gas emissions and just 0.7 percent of total U.S. greenhouse gas emissions, according to the EPA.

[2] A ton-mile is the movement of one ton of freight one-mile. It is a standard way to measure freight volume across transportation modes.

U.S. Greenhouse Gas Emissions By Economic Sector: 2006

Economic Sector	Tg CO2 Eq.	% of Total
Electr. generation	2,377.8	33.7%
Residential	344.8	4.9%
Industry	1,371.5	19.4%
Agriculture	533.6	7.6%
Transportation	1,969.5	27.9%
Commercial	394.6	5.6%
U.S. Territories	62.4	0.9%
Total	7,054.2	100.0%

Data are in teragrams of CO2 equivalents.

U.S. Greenhouse Gas Emissions from Transportation: 2006

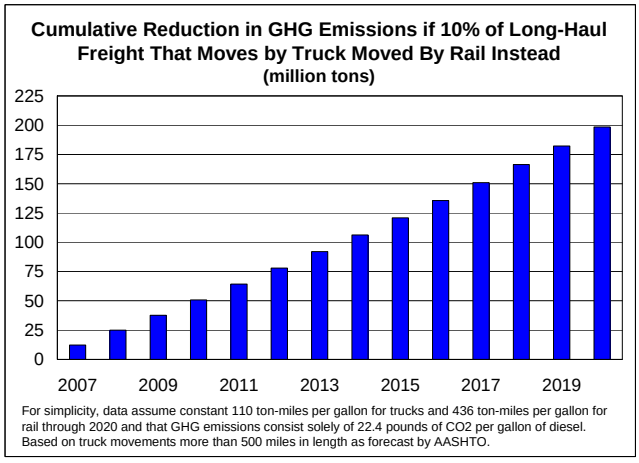
Economic Sector	Tg CO2 Eq.	% of Total
Trucking	404.6	20.8%
Freight Railroads	**51.5**	2.6%
Waterborne Freight	30.2	1.5%
Pipelines	32.4	1.7%
Aircraft	157.4	8.1%
Recreational Boats	17.4	0.9%
Passenger Railroads	6.4	0.3%
Pass. Cars & Light Duty Trucks	1,236.9	63.5%
Buses	12.5	0.6%
Total	1,949.3	100.0%

Source: EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006, Tables ES-7, A-100, and A-101.*
Totals for "transportation" in the two tables do not match exactly because of estimation issues.

Moving More Freight By Rail is in the Public Interest

Trucks are, and will continue to be, critical to freight transportation and to our economy. But based on data from a study by the American Association of State Highway and Transportation Officials (AASHTO), for each 1 percent of long-haul freight moved by rail instead of by truck, fuel savings would be around 110 million gallons per year and annual greenhouse gas emissions would fall by around 1.2 million tons. If 10 percent of long-haul freight now moving by truck moved by rail instead, annual fuel savings would exceed one billion gallons and annual greenhouse gas emissions would fall by more than 12 million tons.

Moreover, because freight transportation demand is expected to rise sharply in the years ahead, future fuel savings — and greenhouse gas reductions — would be much higher if more freight moved by rail. AASHTO projects that ton-miles for truck movements more than 500



miles long will increase from 1.40 trillion in 2000 to 2.13 trillion in 2020. If 10 percent of these long-haul truck movements went by rail (perhaps via efficient intermodal movements involving both railroads and trucks), cumulative greenhouse gas reductions from 2007 to 2020 would be around 200 million tons.

The public benefits of freight rail do not stop there, however. Moving more freight by rail would also help reduce highway congestion, which costs $78 billion just in wasted travel time (4.2 billion hours) and wasted fuel (2.9 billion gallons) each year, according to the Texas Transportation Institute's 2007 Urban Mobility Report. (The total costs of congestion are far higher if lost productivity, costs associated with cargo delays, and other items are included.) A typical train, though, takes the freight equivalent of several hundred trucks off our congested highways, thus enhancing mobility and reducing the amount of greenhouse gases emitted by motor vehicles stuck or slowed in traffic. Railroads also reduce the costs of maintaining existing roads and reduce the pressure to build costly new roads, freeing up limited funds for other purposes.

Finally, railroads also release far less of other types of emissions than other modes of transport. The EPA estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive. Other studies suggest an even greater advantage for railroads. In March 2008, the EPA issued stringent new locomotive emissions guidelines that, when fully implemented, will cut particulate matter emissions by locomotives by as much as 90 percent and nitrogen oxide (NOx) emissions by as much as 80 percent compared to locomotives meeting the most stringent standards set in 1998. The new

Railroads: The Best Choice for the Environment (Emissions Per Ton-Mile)

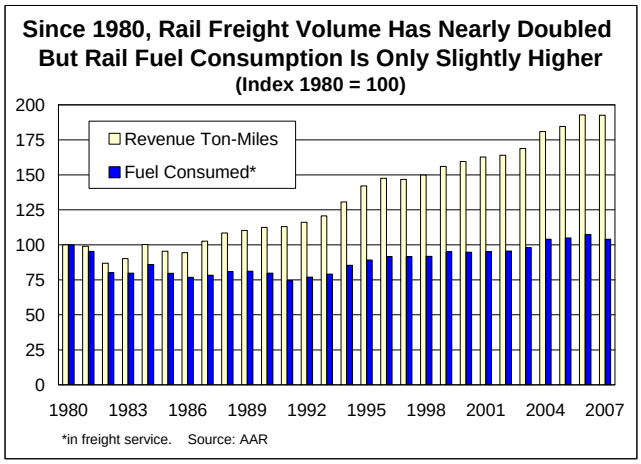
Rank (1= Most Desirable)	Oxides of Nitrogen	Volatile Organic Compounds	Particulate Matter	Carbon Monoxide	Carbon Dioxide
1	**Rail**	**Rail**	Air	**Rail**	**Rail**
2	Water	Water	**Rail**	Water	Water
3	Truck	Air	Water	Air	Truck
4	Air	Truck	Truck	Truck	Air

Source: Envirotrans

standards will also yield sizeable reductions in emissions of hydrocarbons, carbon monoxide, and other air toxics.

Railroads Are Constantly Working to Improve Fuel Efficiency and Reduce Greenhouse Gas Emissions Even More

In 1980, one gallon of diesel fuel moved one ton of freight by rail an average of 235 miles. As noted earlier, by 2007 railroads moved one ton of freight an average of 436 miles per gallon of fuel. Thanks to this improvement in fuel efficiency, in 2007 alone Class I freight railroads used 3.5 billion fewer gallons of fuel — and emitted nearly 39 million fewer tons of carbon dioxide — than they would have if their fuel efficiency had remained constant since 1980. From 1980 through 2007, U.S. freight railroads consumed 48 billion fewer gallons of fuel and emitted 538 million fewer tons of carbon dioxide than they would have if their fuel efficiency had not improved.[3]



Railroads are investing heavily in "cleaner and greener" technologies and other efforts to further improve their fuel efficiency. Just a few examples include:

- New locomotives. Railroads have spent billions of dollars in recent years on thousands of new, more environmentally-friendly locomotives. They have also overhauled thousands of older locomotives to improve their environmental performance.

  Some of the new locomotives are fuel-saving "generator set" (genset) units for use in rail yards. Gensets have two or three independent engines that cycle on and off depending on need, sharply reducing fuel consumption, pollution, and noise compared to the loco-

[3] Today, U.S. freight railroads today consume approximately 4.4 billion gallons of diesel fuel per year.

motives they replace. Other switching locomotives are hybrids with a small fossil-fueled engine in addition to a bank of rechargeable batteries. Research is ongoing on hybrid long-haul locomotives that would store in batteries the energy generated by braking, and in hydrogen fuel cell switching locomotives.

- Train handling. In part, railroad fuel efficiency depends on how well an engineer handles a train. That's why railroads use the skills of their engineers to save fuel. For example, many railroads offer training programs through which engineers and simulators provide fuel-saving tips. On some major railroads, the fuel consumption performance of participating engineers is compared, with awards given to the top "fuel masters."

  In addition, railroads are using sophisticated on-board monitoring systems to gather and evaluate information on location, topography, track curvature, train length and weight, and more to provide engineers with real-time "coaching" on the best speed for that train from a fuel-savings standpoint.

- Information technology. Many railroads use advanced computer software to improve their fuel efficiency. For example, sophisticated modeling tools identify the best way to sequence cars in a large classification yard. Railroads also use innovative "trip planning" systems that automatically analyze crew and locomotive availability, track congestion, the priority of different freight cars, track conditions, and other variables to optimize how and when freight cars are assembled to form trains and when those trains depart. The result is smoother traffic flow, better asset utilization, and reduced fuel use.

- Idle reduction technology. Locomotives often have to idle when not in use to prevent freezing, provide for crew comfort, or for other reasons. However, many railroads have installed idle-reduction technology that allows main engines to shut down under certain conditions. One advantage of genset locomotives is that their smaller engines use anti-freeze, allowing them to shut down in cold weather. Railroads also use "auxiliary power units" to warm engines so that locomotives can be shut down in cold weather.

- Components, maintenance, and design. Railroads use innovative freight car and locomotive components, maintenance programs, and designs to save fuel. For example, advanced lubrication techniques save fuel by reducing friction; the use of low torque bearings on freight cars and improving the aerodynamic profile of trains save fuel by

reducing drag; and the use of "distributed power" (locomotives placed in the middle of trains) can, in certain applications, save fuel by improving operational efficiency.

The seven largest U.S. freight railroads have all joined EPA's "SmartWay Transport," a voluntary partnership between freight transporters and the EPA that establishes incentives for fuel efficiency improvements and greenhouse gas reductions. The initiative is designed to reduce annual carbon dioxide emissions by 36 to 73 million tons and nitrogen oxide (NOx) emissions by up to 220,000 tons. As part of the partnership, each railroad has committed to evaluating the environmental impacts of its operations and agreed to work with the EPA to develop and implement plans to improve fuel efficiency and reduce emissions in coming years.

What Can Policymakers Do Regarding Freight Rail?

Using freight railroads more means consuming fuel less, and that's important today more than ever.

Serious capacity issues, however, threaten the ability of railroads to handle socially-optimal amounts of traffic. Freight railroads are reinvesting record amounts of their own funds into their systems, but that will not be enough to take full advantage of railroads' potential to meet our transportation needs. That's why we respectfully urge you to support a tax credit for projects that expand freight rail capacity. This would help bridge the funding gap, producing public benefits (like reduced greenhouse gas emissions, reduced highway gridlock, and cleaner air) that would far exceed the cost of the credit.

S. 1125 (the "Freight Rail Infrastructure Capacity Expansion Act of 2007") calls for a 25 percent tax credit for investments in freight rail infrastructure expansion projects. The AAR gratefully acknowledges the support members of this committee have shown toward S. 1125, and congratulates them on recognizing that a rail investment tax credit addresses the central

challenge of how to move more freight without causing more highway gridlock or environmental degradation.

I also respectfully urge you to support S. 881, the "Short Line Railroad Investment Act of 2007," which would extend the "Section 45G" tax credit for investments in short line track rehabilitation that expired in 2007. The Section 45G tax credit has helped hundreds of short line railroads increase the volume and rate of track rehabilitation and improvement programs, which in turn allows them to offer more efficient, cost-effective, and environmentally-friendly rail service to communities throughout the country.

Finally, the immense public benefits of freight railroading — including lower greenhouse gas emissions and less congested roads and highways — would accrue more quickly if more public-private partnerships for freight railroad infrastructure projects were implemented. Partnerships are not "subsidies" to railroads. Rather, they are an acknowledgement that private entities should pay for private benefits and public entities should pay for public benefits. Partnerships reflect the fact that cooperation between interested entities is far more likely to result in timely, meaningful solutions to transportation problems than a go-it-alone approach.

Climate Change and Passenger Rail

As discussed above, if our goal is to reduce greenhouse gas emissions and highway congestion, transportation policy should emphasize modes of transportation that reduce fuel consumption and take motor vehicles off our congested highways. Railroads offer a fuel efficient, carbon-friendly transportation option for people as well as freight.

In its January 2008 final report to Congress, the National Surface Transportation Policy and Revenue Study Commission stated that "intercity passenger rail is … more energy efficient than many other modes of passenger transportation." The report states that the average intercity passenger rail train produces 60 percent lower carbon dioxide emissions per passenger-mile than

the average automobile, and half the carbon dioxide emissions per passenger-mile of an airplane.

BNSF CEO Matt Rose was a member of that Commission. In the final report, Mr. Rose stated that he "shared the conclusion of the Commission's report that passenger rail — intercity and commuter — will need to grow in order to supplant [vehicle miles traveled] and give Americans more affordable, sustainable choices in light of higher fuel prices, growing transportation congestion and related environmental concerns."

Mr. Rose, like so many others, realizes that there are substantial public benefits from comprehensive intercity passenger rail. Indeed, the public benefits of a truly attractive and competitive national passenger rail capability will exceed public costs. But in order to be a true transportation alternative for Americans, passenger rail, like freight rail, cannot be achieved on the cheap.

That's why expanding the capacity of our nation's rail infrastructure is a critical challenge that policymakers should address, especially as rising fuel prices are bringing ever-more passengers to railroads. Amtrak ridership may reach 28 million this year — the highest it has ever been and up from 25.8 million passengers last year. In fact, Amtrak ridership and revenues are up in all categories: short distance, long distance, and Northeast Corridor services are all experiencing significant growth. Last month, Amtrak had the highest revenue and ridership of any month in history. Fiscal year 2008 year-to-date ridership is up 11 percent and revenues are up 14 percent over the comparable period in fiscal year 2007.

Indeed, as the cost of auto and air travel continue to increase and the prospect of a carbon-constrained future increases, we have an opportunity — and the need — to make far more concerted efforts than we have in the past to more fully capture the economic, environmental, and social benefits of reliable, convenient, and comprehensive passenger rail service.

Unfortunately, without significant investment in capacity expansion — both infrastructure and equipment — Amtrak will not be able to handle all the people that want to use it and we will fail to capture all of those benefits.

For example, Amtrak's locomotive fleet is antiquated: its diesel switcher locomotive fleet is 40 years old; the average age of the AEM-7 electric fleet is 25 years, and its overhead electric catenary system in the Northeast Corridor is 1930s technology that does not allow Amtrak to take advantage of the improved efficiency of modern converter, transformer, and transmission designs. Passenger cars could be made lighter and more aerodynamic. These are all areas worthy of government investment that will pay huge dividends over the long term.

Moreover, the implementation of high-speed rail corridors, if done in ways that minimize the substantial operational, engineering, legal, and other impediments that often hinder the ability of freight railroads to accommodate passenger trains, would go a long way in providing a realistic alternative to short-distance air travel and driving for millions of trips per year while significantly reducing the carbon footprint associated with that travel.

In the meantime, Amtrak is committed to working to improve efficiency and reducing greenhouse gas emissions. For example, Amtrak is partnering with the state of Oklahoma on a pilot project to test the use of biofuels in Amtrak locomotives. Amtrak has been approached by another state about a pilot project testing new battery technology in locomotives. Amtrak has long been an industry leader in environmental initiatives as a charter member of the Chicago Climate Exchange (CCX) and the first railroad in CCX, North America's first greenhouse gas emissions trading market. Amtrak has already committed to the largest voluntary emissions reduction plan for diesel fuel use in the United States. In addition, Amtrak passengers can now purchase carbon offsets for their rail trip with Internet ticket purchases.

Conclusion

The key to reducing transportation-related greenhouse gas emissions is reducing fuel consumption in transportation. America's freight and passenger railroads offer a simple, cost-effective and meaningful way to help do this, thereby helping to ensure a sustainable future for our planet.