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### Damns Warming Turn 1NC

#### Dams release the most methane out of all human sources – methane is 25 times more potent than CO2.

Phelan, Sarah, Earth Island Journal “Bubbling Waters” Autumn 2007

Opponents of dams have long argued against putting barriers in the natural flow of a river. Dams, they point out, prevent endangered fish from migrating, alter ecosystems, and threaten the livelihoods of local communities. Native Americans, fishing communities, and environmentalists have made these arguments in their quest to decommission four dams on Klamath River, which runs from southwest Oregon to the coast of California. But with California requiring a 25 percent reduction in the state's carbon dioxide emissions by 2020, clean energy has suddenly entered the Klamath dam debate. Bill Fehrman, president of PacifiCorp, the hydropower company that owns these Klamath dams, says replacing the power from these dams "could result in adding combustion emissions to the environment." Meanwhile, across the border in Canada, Hydro-Québec, the world's biggest producer of hydropower, claims that "compared with other generating options, hydropower emits very little greenhouse gas," thus "contributing significantly to the fight against climate change." Maybe not. Recent reports on methane emissions suggest that dams are anything but carbon-neutral. According to recently published estimates from Ivan Lima and some of his colleagues at Brazil's National Institute for Space Research, the world's 52,000 largest dams release 104 million metric tons of methane annually. If Lima's calculations are correct, then dams would account for about four percent of the total warming impact of human activities — and would constitute the largest single source of human-related methane emissions. As Lima points out, if methane released from reservoir surfaces, spillways, and turbines were taken into account, India's greenhouse emissions could be as much as 40 percent higher than its current official estimates. But though India ranks among the world's top polluters, as a developing nation it is not required to cut emissions — and has yet to measure methane from its 4,500 dams. And that's a problem, because while methane does not last as long in the atmosphere as carbon dioxide, its heat-trapping potential is 25 times stronger.

#### Unmitigated warming causes extinction

**Mazo 2010** (Jeffrey Mazo, Managing Editor of Survival and Research Fellow for Environmental Security and Science Policy at the International Institute for Strategic Studies, March 2010, “Climate Conflict: How global warming threatens security and what to do about it”)

The best estimates for global warming to the end of the century range from 2.5-4.~C above pre-industrial levels, depending on the scenario. Even in the best-case scenario, the low end of the likely range is 1.goC, and in the worst 'business as usual' projections, which actual emissions have been matching, the range of likely warming runs from 3.1--7.1°C. Even keeping emissions at constant 2000 levels (which have already been exceeded), global temperature would still be expected to reach 1.2°C (O'9""1.5°C)above pre-industrial levels by the end of the century." Without early and severe reductions in emissions, the effects of climate change in the second half of the twenty-first century are likely to be catastrophic for the stability and security of countries in the developing world - not to mention the associated human tragedy. Climate change could even undermine the strength and stability of emerging and advanced economies, beyond the knock-on effects on security of widespread state failure and collapse in developing countries.' And although they have been condemned as melodramatic and alarmist, many informed observers believe that unmitigated climate change beyond the end of the century could pose an existential threat to civilisation." What is certain is that there is no precedent in human experience for such rapid change or such climatic conditions, and even in the best case adaptation to these extremes would mean profound social, cultural and political changes.

### Damns Turn Warming Extensions

#### Dams release four times the carbon that their fossil fuel competitors release.

Phelan, Sarah, Earth Island Journal “Bubbling Waters” Autumn 2007

A Swirling Debate Lima is not alone in questioning whether dams' emissions may be as harmful in terms of climate change as those from fossil fuel plants. In 2004, Philip Fearnside of the National Institute for Research in the Amazon suggested that a massive surge of methane emissions could occur when water is discharged under pressure at hydroelectric dams in a process known in the industry as "degassing." The problem with dams is that organic matter gets trapped in them when land is first flooded, and more gets flushed in, or grows there, later on. In tropical zones, such as Brazil, this matter quickly decays to form methane and carbon dioxide. But just how big a problem this creates is controversial. A debate has been raging for years between researchers connected to Hydro-Québec and Brazil's Electrobras, the world's largest hydropower companies, and several small teams of independent hydrologists. According to Fearnside, if degassing emissions were factored in at several large hydropower plants in Brazil, then these dams would be larger contributors to global warming than their fossil fuel counterparts. To be precise, Fearnside suggested that during the first decade of its life, each of these dams would emit four times as much carbon as a fossil fuel plant that makes the same amount of electricity. Fearnside's claims have triggered a firestorm. Luis Pinguelli Rosa, formerly of Electrobras but now based at the Federal University of Rio de Janeiro, claimed Fearnside had made "scientific errors," including a failure to grasp how degassing works, and so had exaggerated the emission levels. Rosa pointed out that Fearnside had extrapolated his calculations from data taken from the Petit Saut dam in French Guyana in the years immediately following the creation of the reservoir, when organic matter, and thus methane emissions, would likely be their highest. Patrick McCully, executive director of the Berkeley, CA-based International Rivers Network, says that one of the areas of strongest disagreement among reservoir emissions researchers is how to quantify net emissions. In a recent paper, "Fizzy Science," McCully shows that key factors influencing reservoir greenhouse gas emissions include fluctuations in water level, growth and decay of aquatic plants, decomposition of flooded biomass and soils, the amount of methane bubbling from the surface, and the amount of carbon dioxide diffusing in. But as McCully points out, "The most comprehensive analyses of net emissions have been done by Fearnside — while Pinguelli Rosa has only presented data on gross emissions."

### Damns Turn Warming Extensions

#### Hydro-Power Causes adverse effects for environment

Duncan Graham-Rowe 24 February 2005, Staff writer for New Scientist “Hydroelectric power's dirty secret revealed” http://www.newscientist.com/article/dn7046-hydroelectric-powers-dirty-secret-revealed.html

Contrary to popular belief, hydroelectric power can seriously damage the climate. Proposed changes to the way countries' climate budgets are calculated aim to take greenhouse gas emissions from hydropower reservoirs into account, but some experts worry that they will not go far enough. The green image of hydro power as a benign alternative to fossil fuels is false, says Éric Duchemin, a consultant for the Intergovernmental Panel on Climate Change (IPCC). "Everyone thinks hydro is very clean, but this is not the case," he says. Hydroelectric dams produce significant amounts of carbon dioxide and methane, and in some cases produce more of these greenhouse gases than power plants running on fossil fuels. Carbon emissions vary from dam to dam, says Philip Fearnside from Brazil's National Institute for Research in the Amazon in Manaus. "But we do know that there are enough emissions to worry about." In a study to be published in Mitigation and Adaptation Strategies for Global Change, Fearnside estimates that in 1990 the greenhouse effect of emissions from the Curuá-Una dam in Pará, Brazil, was more than three-and-a-half times what would have been produced by generating the same amount of electricity from oil. This is because large amounts of carbon tied up in trees and other plants are released when the reservoir is initially flooded and the plants rot. Then after this first pulse of decay, plant matter settling on the reservoir's bottom decomposes without oxygen, resulting in a build-up of dissolved methane. This is released into the atmosphere when water passes through the dam's turbines.

### Damns Turn Warming Extensions

Hydro-power produces methane which is worse than CO2.

Duncan Graham-Rowe 24 February 2005, Staff writer for New Scientist “Hydroelectric power's dirty secret revealed” http://www.newscientist.com/article/dn7046-hydroelectric-powers-dirty-secret-revealed.html

Seasonal changes in water depth mean there is a continuous supply of decaying material. In the dry season plants colonise the banks of the reservoir only to be engulfed when the water level rises. For shallow-shelving reservoirs these "drawdown" regions can account for several thousand square kilometres. In effect man-made reservoirs convert carbon dioxide in the atmosphere into methane. This is significant because methane's effect on global warming is 21 times stronger than carbon dioxide's. Claiming that hydro projects are net producers of greenhouse gases is not new (New Scientist print edition, 3 June 2000) but the issue now appears to be climbing up the political agenda. In the next round of IPCC discussions in 2006, the proposed National Greenhouse Gas Inventory Programme, which calculates each country's carbon budget, will include emissions from artificially flooded regions. But these guidelines will only take account of the first 10 years of a dam's operation and only include surface emissions. Methane production will go unchecked because climate scientists cannot agree on how significant this is; it will also vary between dams. But if Fearnside gets his way these full emissions would be included. With the proposed IPCC guidelines, tropical countries that rely heavily on hydroelectricity, such as Brazil, could see their national greenhouse emissions inventories increased by as much as 7% (see map). Colder countries are less affected, he says, because cold conditions will be less favourable for producing greenhouse gases. Despite a decade of research documenting the carbon emissions from man-made reservoirs, hydroelectric power still has an undeserved reputation for mitigating global warming. "I think it is important these emissions are counted," says Fearnside.

## Railroads DA

### Railroads DA Links

#### Transportation industry picks winners and losers – water improvement trades off with rail transportation

CCES 2010 (last date cited) Center for Climate and Energy Solutions, “Freight Transportation” Online http://www.c2es.org/technology/factsheet/FreightTransportation

There are many modes of transportation for the movement of goods including truck, rail, water, air, and pipeline. By weight and value, most goods are moved on trucks, but the amount of freight moved by rail is comparable when one considers the amount multiplied by distance as measured in ton-miles (see Figure 1). Because the freight transportation industry is highly competitive, the private sector chooses the most cost-effective mode for transportation. For instance, intermodal transport (using more than one mode) handled less than 11 percent of goods by value in 2008, likely due to the cost of transferring goods between modes. There is evidence that some of the transfer costs are offset by low-cost, long-distance hauls. The Federal Highway Administration (FHWA) estimates intermodal transport’s share of goods will increase to over 21 percent by 2035.[8] Each mode of freight transportation offers advantages and disadvantages. Some useful metrics to compare and contrast freight transportation modes are energy efficiency, convenience, and cost.

#### Cost and viability are the key persuaders – the aff forces a shift away from rail

David V. Grier 2004 (last date cited) U.S. Army Corps of Engineers, Institute for Water Resources “The Declining Reliability of the U.S. Inland Waterway System” http://onlinepubs.trb.org/onlinepubs/archive/Conferences/MTS/4A%20GrierPaper.pdf

The Corps of Engineers’ Lock Performance Monitoring System data indicate that lock unavailability time has more than doubled over the past decade. While a more detailed look at the causes of the unavailability time is needed (lock malfunction versus other reasons), data for locks on the Upper Mississippi River suggest that increasing durations of unscheduled lock maintenance and mechanical malfunctions are a primary cause. This has serious implications for the future of the inland waterway system as a viable freight transportation mode. Concerns over increasing lock unavailability time, lock unreliability, and system integrity may be leading some shippers toward a modal shift to rail or highway. Considering that on a system-wide basis, waterways are generally more energy efficient and produce fewer air emissions than other freight modes, perhaps there needs to be a discussion of what transportation policies and goals best serve the long-run national interest. As noted earlier in this paper, the Department of Transportation’s Freight Analysis Framework (FAF) is projecting freight traffic to increase 70 percent by 2020. The brunt of this growth will be borne by highways, which are already at capacity in many locations. The FAF assumption is that rail and water modes can help meet the freight demand that cannot be handled by the highway system. But if lack of investment and perceived unreliability are already steering shippers away from water, this mode may not be able to play the future role for which it is needed. Indeed, with increasing lock unavailability across the system, the practical capacity of the inland waterway mode diminishes over time, pushing more cargo off the system and perhaps stressing other freight modes even sooner than suggested in the recent FAF study.

### Railroads DA Impacts - Economy

#### Railroads key to the economy – key to all other forms of transportation

John Horsley 2003 (last date cited) Executive Director American Association of State Highway and Transportation Officials “Freight-Rail Bottom Line Report” http://www.camsys.com/pubs/FreightRailReport.pdf

Rail provides shippers of heavy materials or large volumes of materials with a transportation option that can be significantly more cost-effective than truck. Depending on the density of the commodity, one railcar may move the same weight or volume as four or five trucks. Even industries that ship their finished products by truck may be dependent on rail. For example, poultry farmers ship finished chickens to supermarkets by truck, but most of the cost is in buying and moving feed, which is done by rail. For such shippers, rail is usually the low-cost option, and rail rates have been dropping. On average, it costs 29 percent less to move freight by rail today than in 1981. 8 The associated cost savings (in the billions of dollars annually) are vital to the viability of these businesses. The availability of rail service can be an important factor for states and municipalities interested in retaining and attracting these types of businesses. Many states believe that freight-rail service is vital to their economies and have made freight-rail service, especially the retention of lower-density branch lines, a significant part of their economic development and transportation programs. The quote from the Idaho Department of Commerce, shown in Figure 19, reflects the importance of rail to many state departments of economic FREIGHT–RAI L BOTTOM L INE REPORT 27 development, commerce, and agriculture. Rail service also can act as a catalyst for redeveloping urban corridors and underutilized rail-served brownfields as “integrated logistics centers” — concentrations of rail-served warehousing, distribution, and manufacturing — with efficient rail and truck service. Figure 20 shows a schematic of an “integrated logistics center” developed on brownfield industrial property adjacent to a highway and rail line. To estimate the value of freight-rail service to the nation’s shippers, a hypothetical case was examined: What if shippers in 2000 did not have access to rail and instead made the equivalent shipments by truck paying truck rates? The answer: $69 billion. Table 3 shows the hypothetical impact of shifting to truck the 1,239 billion tons of freight now carried by rail at $0.024 per ton for a total cost of $25 billion. If this same 1,239 billion tons of freight were carried by truck at the prevailing average cost of $0.080, the total cost to shippers would be $99 billion, an increase of $69 billion. This figure would increase annually as the total volume of freight increases with the growth of the economy and trade. The final cost to consumers would be significantly higher as the economic-multiplier effect of increased shipping costs rippled through other sectors of the economy. In practice, if the freight-rail system suddenly “went away,” some of these shippers would use water, some would relocate, and others might not ship at all. However, this hypothetical case provides one illustration of the economic importance of rail within the overall transportation system. The railroad industry also makes direct contributions to the nation’s economy. U.S. freight railroads pay over $14 billion a year in wages and benefits to their 192,000 employees. Class I railroad capital expenditures in 2000 came to $6.1 billion. Class I railroads also paid more than $2.2 billion in payroll taxes, $382 million in federal income taxes, and $800 million in other taxes. 9

### Railroads DA Impacts - Economy

#### Railroads are contributing a whole bunch to the economy now – it can only continue to make improvements if it’s competitive

John Horsley 2003 (last date cited) Executive Director American Association of State Highway and Transportation Officials “Freight-Rail Bottom Line Report” http://www.camsys.com/pubs/FreightRailReport.pdf

Railroad productivity has improved dramatically over the past two decades. Figure 23 shows the trend in rail productivity measures. ■ Ton-miles handled per railroad employee have nearly quadrupled. ■ Railroad improvements between 1965 and 1995 reduced costs by $25 billion. 14 Improvements included the following: — Introduction of unit and double-stack trains resulted in an annual savings of $7.5 billion in 1996 alone; — Improved track and network rationalization resulted in $7 billion savings in track costs over the period; — Investment in computers and communications resulted in $4.7 billion savings in labor costs; — Reduced crew consists resulted in $4.2 billion savings in labor costs; and — Improved fuel efficiency resulted in $1.3 billion savings in fuel costs. Overall, these productivity improvements have generally translated into service improvements described in terms of shipper cost, visibility and reliability. ■ Cost Rail prices have dropped over the past two decades relative to other modes. Competition among railroads and with trucking has reduced rail rates, benefiting shippers, consumers, and the economy. In 1980, rail was more expensive on an index basis than either truck or water; today, it is more economical than truck or water. Figure 24 shows the change from 1950 to 2000 in rail, truck, and water freight rates. ■ Visibility Shipment visibility is far greater today than ever before. With advanced tracking technologies and web-based services, customers can follow their individual shipments in real-time and make rerouting decisions en route if necessary. The railroads track and report intermodal shipments effectively, but tracking and reporting consistently on carload shipments is still a challenge. ■ Reliability Over the past decade, railroads have introduced scheduled intermodal services with guaranteed reliability (e.g., within 1.0 hours of schedule, 99 percent of the time). Some railroads claim 99 percent on-time performance for their top intermodal customers, but the industry, as a whole, does not yet meet this benchmark. Railroads have also begun to schedule carload train departures, but because these are lower-priority trains in the system than passenger or intermodal trains, the railroads’ ability to meet arrival windows is substantially less. With some exceptions, service quality as measured by average train speed (freight train-miles per train-hour) has not improved over the past decade. Average speeds are actually lower today than in 1991. Figure 25 shows average freight trains speeds over the last decade. Most shippers whose primary need is for speed will elect to use other modes. Rail speed is less of an issue for price-oriented bulk commodities than for intermodal and carload goods, where competition with trucking is stronger. However, equipment cycle time is a crucial requirement in bulk transport, and speed of transit is a major contributor to it. Modern just-in-time logistics place a premium on visibility, reliability, and speed — areas where trucking has an advantage over rail. A critical challenge for rail is to increase its performance in each of these areas, and to do so at a competitive cost.

### Railroads DA Impacts - Economy

#### Railroads are key to the economy – jobs, reinvestment, biggest indicator of economic growth

Bret Booen 04/18/2011 “How Freight Rail is Getting the US Economy back on Track” Online http://www.teamidslogistics.com/news/how-freight-rail-is-getting-the-us-economy-back-on-track

There are 565 freight railroads in the United States. Those 565 railroads make up a nearly 140,000-mile long rail network that is used to transport imported goods that come via sea freight and air freight from far away destinations. Along with being a national heritage, the railroad is the most efficient and cost-effective way of moving goods into inner-America. Just don’t tell that to UPS and FedEx, who will try to convince you otherwise. The freight rail industry supports over 180,000 US jobs, and by all accounts that number will rise in the coming years as the government and private investors pour millions of dollars into infrastructure improvements and make freight rail capital investments. It’s no surprise that Pennsylvania, an important corridor situated between Chicago and New York City has the most railroads with a whopping 58 tracks. Meanwhile, Hawaii has the least number of tracks with a whopping zero. If we’re going strictly by freight rail miles, then the state where everything is bigger is No. 1 as Texas sports a network of 10,743 freight rail miles. Texas hosts three signature railway companies namely Union Pacific, Kansas City Southern and Burlington Northern/Santa Fe. I don’t mean to insult your intelligence, but freight rail is an important economic driver because freight rate volumes often tell us exactly where the state of our economy is. Take 2008, for example, when the freight rail industry nearing all-time highs. Everyone was having a great time sending their stuff across America, but then it all came crashing down in 2009. I digress. A single train can carry the load of 280 or more trucks. In other words, a freight train essentially takes more than 1,100 cars off of American highways. The last thing anyone wants is more congestion on American highways. The Association of American Railroads (AAR) reports that congestion on highways costs $87 billion in wasted travel time and fuel each year. So not only is freight rail efficient and cost-effective, but it helps mitigate congestion from our nation’s roads, which was one of the more salient points Obama talked about in his State of the Union Address earlier this year. AAR President and CEO Edward R. Hamberger said, “The President has issued a clear call to American businesses, urging them to get off the sidelines and get back in the game by investing capital and hiring.” While President Obama and other leaders have called upon private companies to increase capital spending and rev up hiring, the nation’s freight railroads have been spending record sums of private capital on the rail network and bringing people back to work. Railroad hiring at the end of 2010 was up 5.2 percent over the year before, according to the report, and railroads are positioned to hire more workers in the coming years. Hamberger says, “Freight railroads have been in the game for the past 30 years, investing more than $480 billion to build and maintain America’s freight rail network with private capital, and supporting jobs all across the country. Freight railroads have a great track record and are ready to continue investing in the national rail network so U.S. taxpayers don’t have to. But, we must have a regulatory framework that supports, and does not hinder, private investment.”

### Railroads DA Impacts - Trade

#### Key to trade

John Horsley 2003 (last date cited) Executive Director American Association of State Highway and Transportation Officials “Freight-Rail Bottom Line Report” http://www.camsys.com/pubs/FreightRailReport.pdf

As a result, many ports are taking the lead role in making rail access improvements. The most visible example to date is the recently opened Alameda Corridor, which serves the ports of Long Beach and Los Angeles. The ports, in cooperation with local, regional, and state governments, developed and implemented a $2.4 billion dollar plan to consolidate the operations of three freight lines and reduce local trucking between port and rail facilities. The result is a single, triple-tracked, fully grade-separated, 20-mile intermodal freight-rail corridor. About half the funding is derived from bonds secured by freight-rail revenues; the remainder is a combination of loans, grants, and tax proceeds. The public benefits of the project included strengthening the economic value of the ports, reducing truck traffic and engine emissions, eliminating congestion at rail-grade crossings, and reconnecting neighborhoods once divided by the rail lines. By serving the nation’s seaports, rail becomes a critical element in the nation’s access to global markets and supports U.S. producers and consumers in the world economy. Rail also provides access across land borders to Canada and Mexico. While trucks sit in queues at borders awaiting inspection and clearance, trains that are pre-cleared and electronically tracked can cross the border at full speed without stopping. According to the U.S. Bureau of Transportation Statistics, surface trade with Canada and Mexico was valued at over $575 billion dollars in 2000. Rail was responsible for over $94 billion dollars or 16 percent of this trade. Just five border crossings — Port Huron, Michigan; Laredo, Texas; Buffalo-Niagara Falls, New York; Detroit, Michigan; and International Falls-Ranier, Minnesota — account for 80 percent of rail-borne international trade by value.

### Railroads DA Impacts – A2 Bad for Environment

#### Railroads are super fuel efficient

John Horsley 2003 (last date cited) Executive Director American Association of State Highway and Transportation Officials “Freight-Rail Bottom Line Report” http://www.camsys.com/pubs/FreightRailReport.pdf

Railroads provide significant environmental benefits. 12 The U.S. Environmental Protection Agency estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive. Related studies suggest that trucks emit six to 12 times more pollutants per ton-mile than do railroads, depending on the pollutant measured. According to the American Society of Mechanical Engineers, 2.5 million fewer tons of carbon dioxide would be emitted into the air annually if 10 percent of intercity freight now moving by highway were shifted to rail. In 2000, railroads moved a ton of freight an average of 396 miles per gallon. If 10 percent of the freight moved by highway were diverted to rail, the nation could save as much as 200 million gallons of fuel annually. On average, railroads are three or more times more fuel efficient than trucks. Rail is also a preferred mode for hazardous materials shipments. The nation’s railroads handled 1.7 million carloads of hazardous materials in 2000. Just 35 accidents took place that resulted in spills or leaks of the materials.

### Railroads DA A2 Intermodal Transport Good

#### Intermodalism doesn’t solve – railroads have to remain strong

DAVID B. CLARKE, no date Clemson University “Local and Regional Rail Freight Transport” Online http://onlinepubs.trb.org/onlinepubs/millennium/00067.pdf

Public sector planners must recognize and consider the role small railroads play in local and regional transportation systems. Despite the emphasis on freight and intermodalism in recent transportation laws, many planners still have only a hazy understanding of the critical role of freight transportation and of railroads in particular. The industry must remedy this situation in the new century. A balanced public transportation policy must include rail transportation. To gain maximum credibility and public sector support, the planning process also must consider the role of small railroads and must establish a continuing dialogue among the railroads, their customers, and planners. Corridors in which rail service cannot be maintained should be preserved for future use; if the tracks are removed, the option should remain to restore rail transportation. Planners in larger urban areas also should consider rail rights-of-way as corridors for future transit, either for light rail or conventional rail. With suitable physical plant and operating practices, passenger and freight service can coexist. Careful planning and adequate investment are required, however, to provide satisfactory service levels for both customer bases and to maintain service despite possible increases in capacity needs.

### Railroads Sustainable/On the Brink

#### Rail industry ridership booming now – squo investments solve sustainability

Erik Pages June 13, 2012 “Buy American and Regional Development: Emerging Opportunities in Rail Transportation” Manufacturing Extension Partnership, Online http://nistmep.blogs.govdelivery.com/2012/06/13/buy-american-and-regional-development-emerging-opportunities-in-rail-transportation/

The US freight rail industry is booming, and is still the world’s largest freight market. Equally exciting is the emergence of new opportunities in the passenger rail industry. Several exciting trends are coalescing. Ridership numbers are rapidly rising. Between 1995 and 2008, ridership on commuter, light and heavy rail jumped 72 percent. Demographic trends suggest these patterns will accelerate. New USPIRG research shows that younger Americans have strong preferences for alternative transportation, including rail. Finally, new resources are being deployed to upgrade and expand rail infrastructure across the US. The emergence of a revitalized rail industry is a good thing for residents and for business as it ensures that people and goods can move more easily. But, the benefits go further. The emergence of new demand for rail creates new opportunities for American manufacturing. After years of neglect, the prospects for US passenger rail suppliers are looking up.

#### Rail industry is sustainable now – cost and environment

Elizabeth Dovell March 7, 2012 “U.S. Rail Infrastructure” Council on Foreign Relations, Online http://www.cfr.org/united-states/us-rail-infrastructure/p27585

The U.S. freight rail industry continues to thrive today. "America's freight railways are one of the unsung transport successes of the past thirty years," says the Economist. "They are universally recognized in the industry as the best in the world." Freight railroad is maintained with little taxpayer money, unlike alternative forms of freight transport such as trucks and barges, for which the government maintains the infrastructure. Over the last several decades, U.S. freight companies have made billion-dollar investments in the national rail network. Warren Buffett highlighted this trend in 2009, increasing Berkshire Hathaway's holdings of BNSF (USA Today)--the nation's second largest railroad--by $26 billion. Remarking on the historic investment, which was the largest in the history of Berkshire, Buffett said, "Our country's prosperity depends on its having an efficient and well-maintained rail system." Compared to other modes of freight transport, rail also has a smaller environmental impact, better fuel efficiency, and lower costs over large distances. Steel wheel technology makes rail far more efficient than truck freight due to limited rolling resistance: railcars become more efficient as more weight is added. Trains can now move one ton of cargo approximately 484 miles on just one gallon of fuel, according to the American Association of Railroads. Lower freight rail costs save consumers money and help keep U.S. manufacturers globally competitive. According to Dr. Pasi Lautala, director of the Rail Transport Program at Michigan Technological University, "If you talk to industry experts, everyone has a positive outlook on the future of the freight rail industry, because it makes sense if you look at the world right now. You look at the economic advances, especially in fuel consumption compared to truck traffic and the limitations of marine transportation."

### Railroads Sustainable/On the Brink

#### Railroads sustainable now – preserving the current order is key to maintain growth

AAR June 2012 “America Needs More Rail Capacity” Association of American Railroads http://www.aar.org/~/media/aar/Background-Papers/America-Needs-More-Capacity.ashx

In the years ahead, America’s demand for safe, affordable, and environmentally responsible freight transportation will grow. Railroads are the best way to meet this demand. Overwhelmingly private owned and operated, in recent years railroads have been reinvesting more than $20 billion per year — of their own funds, not government funds — to create a freight rail network that is second to none in the world. Public officials can help ensure that America has adequate rail capacity in the years ahead by retaining the current rail regulatory structure that protects shippers and consumers while giving railroads the opportunity to earn the funds they need to keep their networks in top condition; by reforming the corporate tax code to enhance economic development and promote job growth; and by entering into mutually beneficial public-private partnerships with railroads to solve transportation problems.

#### Fuel costs don’t make it unsustainable – domestic energy production solves

Mark Szakonyi, Associate Editor Jun 11, 2012 “US Rail on Strong Track As Economy Slows” The Journal of Commerce, Online http://www.joc.com/intermodal/us-rail-strong-track-economy-slows?page=2

The U.S. rail shippers don’t appear to heeding the warnings of a national economic slowdown. Intermodal volume in May on the major U.S. railroads hit the highest level in history for that month, according to the Association of American Railroads. Intermodal traffic last month was 3.5 percent higher than the same month a year ago. Although carload volume was down 2.8 percent year-over-year in the same period, the big losses were because of slumps in the major commodities of coal and grain. Sluggish grain shipments are more cyclical than a reflection of the health of the economy. And poor coal volume isn’t because utilities aren’t powering factories but because of a warmer-than-usual winter and increased federal regulatory pressure to burn natural gas rather than coal. Besides, most of the business categories tied to manufacturing saw healthy growth on major railroads in May. Petroleum and related products jumped 49.2 percent, reflecting the continued growth of the domestic energy industry. Primary metal products traffic rose 4.3 percent, and shipments of motor vehicles were up 27.7 percent from a year ago. The only worrying decline was an 11.8 percent drop in chemical shipments. A similar scenario is seen in U.S. short line volume. Volume was nearly flat in the week ending June 2, but overall traffic for the year is up 1.1 percent, according to the RailConnect Index. Like the major U.S. railroads, the short lines have been hit by drops in coal and grain shipments. Other than those declines, most commodities have expanded this year. Intermodal, motor vehicles and equipment, and lumber and forest products volumes so far in 2012 are all up on a double-digit basis.

### Railroads Sustainable/On the Brink

#### Railroads are sustainable now – maintaining competitiveness key

DAVID B. CLARKE, no date Clemson University “Local and Regional Rail Freight Transport” Online http://onlinepubs.trb.org/onlinepubs/millennium/00067.pdf

The future for local and regional freight railroads is far from clear as the new millennium begins. The industry has many opportunities for growth, but challenges are also formidable. Clearly, small railroads offer a cost-effective, customer-oriented product for shippers. This product is helping to return traffic wherever there is latent demand for rail service. However, to prosper in the next century, the industry must successfully address changes in the economy that affect the demand for railroad service, obtain financing to maintain and improve infrastructure, and learn to operate in an increasingly regulated environment. To do this, small railroads must become tightly integrated into the logistics systems of their customers, maintain close partnerships with Class I railroads, and keep a high profile in the public sector. If these objectives can be accomplished, small railroads likely will be serving customers efficiently as the 22nd century begins.

## AFF Answers – Railroads DA

### Railroads Unsustainable

#### Rising oil prices make the rail industry unsustainable - investing in water now is key

TEMS October 2008 transportation economics & management systems, inc. “IMPACT OF HIGH OIL PRICES ON FREIGHT TRANSPORTATION: MODAL SHIFT POTENTIAL IN FIVE CORRIDORS EXECUTIVE SUMMARY” online http://www.marad.dot.gov/documents/Modal\_Shift\_Study\_-\_Executive\_Summary.pdf

Overall, the impact of recent oil price hikes has created a strong case for investing in waterborne transportation – for both inland and coastal freight distribution. Further increases in oil prices, which would increase fuel costs three- to eight-times over their historical equilibrium levels could make the U.S. transportation environment more like that of Europe in the 1990’s. Historically, coastal and inland water transport has been far more significant in Europe than in the U.S. because of higher European inland rail and truck transport costs that make water cost-effective. The European experience also demonstrates that water-based logistics chains can work effectively, for distributing not only bulk goods and industrial products but consumer goods as well. This could well become the case in the U.S. if the cost differential between the three modes is maintained at the levels reached in 2008 because of much higher fuel prices. In summary, higher oil prices could well promote a significantly enhanced role for water in the U.S. transportation network. This study reveals the potential for such a modal shift in the market attractiveness of waterborne freight transportation. However, this potential can only be recognized if it is supported by public policies that encourage industry and its public partners to invest in the ships, ports, and other infrastructure needed.

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#### Railroads will fail now – aging infrastructure, congestion, and capacity - the aff is key to solve the impacts

Colonel Donald E. Jackson, Jr. “Leveraging the Strategic Value of the U.S. Inland Waterway System” 14 March 2007 http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA469583

Railroads provide shippers with cost-effective freight transportation, especially for longdistance trips and heavy and bulky commodities. 9 In 2004, Class I railroads in the United States transported 1.8 billion tons, the highest originating tonnage ever. This record tonnage reflects steady growth in rail traffic for six straight years. U.S. freight trains serve almost every economic sector in the nation, hauling approximately 31.1% of total cargo as measured in ton- miles. Railroads are unique among transportation industry sectors. Railroad infrastructure is privately owned and operated with access limited to the owners of the track. 10 Although the railroad industry is now competitive and productive, railroads are very capital-intensive industries. Railroads are not attracting enough long-term investment, and the freight-rail system may not expand proportionate to economic growth if current trends continue. Unlike most other transportation industries, railroads receive very little subsidy from federal or state governments and rely on their ability to raise necessary capital for maintenance and improvements. U.S. railroads are hauling more freight than ever before and rely more heavily on a shrinking and aging infrastructure. These traffic increases result in capacity constraints and service issues at certain junctions and corridors within the rail network. In fact, excess capacity has disappeared from many critical segments of the national rail system altogether. 11 Failure of the railroad industry to expand exponentially with national economic growth pushes additional freight traffic onto other modes of transport, leading to increased congestion along surface transportation corridors. As our road and rail networks have become increasingly congested and near maximum capacity, we must look to the inland waterway system as a solution. 12 The inland waterway system provides an alternative to overland transportation, reducing congestion plaguing existing road and rail infrastructure. Inland waterways account for approximately 11% of total domestic freight (as measured in ton-miles), third behind road and rail. 13 Principal commodity groups include coal, petroleum, farm products, chemicals and crude materials such as aggregates for construction and other minerals. Total volume ranges around 630 million tons annually, and about 300 million ton-miles. Coal is used to generate over half the electricity produced in the U.S. and the inland waterways transport about 20% of this energy source. 14 The Mississippi River System is the most important commercial navigation corridor, consisting of the Mississippi River and its multiple connecting tributaries. The majority of U.S. navigable rivers and canals are in the eastern half of the country. The Columbia, Sacramento, and San Joaquin Rivers are the only major navigable rivers on the West Coast. The Department of the Army, with the U.S. Army Corps of Engineers (USACE) as its executive agent, has statutory responsibility for operating and maintaining all U.S. navigable waterways, excluding the Saint Lawrence Seaway. The Corps maintains more than 12,000 miles of inland waterways, owning or operating 196 commercially active lock sites with 241 lock chambers for the federal government. These waterways integrate a system of rivers, lakes, and coastal bays improved for commercial and recreational transport. Locks provide the essential infrastructure that allow tows to “stairstep” their way through the system and reach distant inland ports such as Minneapolis, Chicago, and Pittsburgh. 15 Most of the locks supporting the inland waterway system are antiquated and in need of repair, expansion, and modernization. Many of the Corps-owned or operated locks are well past their planned design life of 50 years. Of the locks still in use in the United States, 30 were built in the 19 th Century and another 92 locks are more than 60 years old. 16 Nearly 50% of all Corps-maintained locks were considered to be functionally obsolete by the beginning of 2005. Assuming no new locks are built in the next 20 years, by 2020, another 93 existing locks will be obsolete. This means that 80 percent of locks now in service are beyond their planned design life, casting doubt of the reliability of the system as a whole. The physical condition of the 5 inland waterway infrastructure recently received a grade of D- from the American Society of Civil Engineers (ASCE) in their 2005 Report Card for America’s Infrastructure, released in March 2005. 17 The report highlights the concern that lock condition is declining at the same time waterway usage is increasing. This is a significant challenge facing the inland waterway system, indicative of problems facing other industry sectors as well, casting doubt on the future viability of our national freight transportation system.

### Impact Turn – Causes Global Warming

#### Causes significant emissions – spills over to other forms of transit

Randal O’Toole senior fellow with the Cato Institute April 14, 2008 “Does Rail Transit Save Energy or Reduce Greenhouse Gas Emissions?” http://www.cato.org/pubs/pas/pa-615.pdf

Far from protecting the environment, most rail transit lines use more energy per passenger mile, and many generate more greenhouse gases, than the average passenger automobile. Rail transit provides no guarantee that a city will save energy or meet greenhouse gas targets. While most rail transit uses less energy than buses, rail transit does not operate in a vacuum: transit agencies supplement it with extensive feeder bus operations. Those feeder buses tend to have low ridership, so they have high energy costs and greenhouse gas emissions per passenger mile. The result is that, when new rail transit lines open, the transit systems as a whole can end up consuming more energy, per passenger mile, than they did before. Even where rail transit operations save a little energy, the construction of rail transit lines consumes huge amounts of energy and emits large volumes of greenhouse gases. In most cases, many decades of energy savings would be needed to repay the energy cost of construction. Rail transit attempts to improve the environment by changing people’s behavior so that they drive less. Such behavioral efforts have been far less successful than technical solutions to toxic air pollution and other environmental problems associated with automobiles.

#### Greater demand for rail = more emissions

Texas Transportation Institute “Greening North American Transportation Corridors” 2010 Texas A&M Researchers, Online http://www.cec.org/Storage/86/9508\_QA09-23-Freight\_Corridor\_Report\_en.pdf

This paper presents a case study determining the air related environmental impact, including emissions of criteria pollutants and greenhouse gases, of truck and rail freight movement along a corridor stretching from Mexico City to Montreal. Network and freight activity data were assembled for the corridor for a base case (corresponding to the year 2010) and a future case (corresponding to 2035). Emission rates for the case study were obtained from the US Environmental Protection Agency’s MOBILE6.2 emissions model, using US average parameters such as vehicle age distribution, from vehicle registration data. Rail emissions calculations are based on US average emissions and fuel consumption rates and were revised to reflect the ongoing improvements in locomotive engine standards. The results show that freight movement will continue to cause substantial amounts of carbon dioxide (CO2) emissions. Current levels of rail emissions are not significant relative to the contribution from trucking; proportionally, however, the share of rail emissions for some pollutants will increase over time. This is due to the projected increase in rail freight movement, coupled with a significant reduction in criteria pollutants from trucks as the result of more stringent emission standards and improved engine designs.