MAKE IT IN AMERICA

The Apollo Clean Transportation Manufacturing Action Plan

CLEAN ENERGY APOLLO ALLIANCE GOOD JOBS

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MAKE IT IN AMERICA

The Apollo Clean Transportation Manufacturing Action Plan

"We must jumpstart industries that create jobs, and end our dependence on foreign oil. We must unleash the innovation that allows new products to roll off our assembly lines, and nurture the ideas that spring from our entrepreneurs."

President Barack Obama, August 31, 2010

Introduction

Ten years into the 21st century, our national transportation policy remains shaped by a law passed in 1956. Three years into a global economic recession, the U.S. economy continues to languish. With millions unemployed, it is time to put Americans back to work rebuilding our public transit systems, roads, and bridges; manufacturing advanced transportation vehicles; and laying the foundation for long-term economic recovery.

Continued underinvestment in infrastructure and environmentally sustainable transportation options has left roads and bridges crumbling, mass transit systems in disrepair, and a transportation sector that accounts for almost one-third of our nation's greenhouse gas emissions. Each year, traffic congestion costs Americans nearly $90 billion in lost productivity and fuel purchases, with the average commuter losing nearly one full work week sitting in traffic.[1] Nearly half of all Americans lack alternatives to private automobiles and convenient access to public transit, which makes congestion even worse. What's more, existing public transit infrastructure suffers from decades of deferred maintenance. In fact, a recent report by the Department of Transportation, or DOT, found that our nation's public transit systems would need an immediate investment of over $77 billion just to bring them into a state of good repair.[2]

In March 2010, the Apollo Alliance convened a task force of leading manufacturers, labor unions, and policy experts in

transportation, energy, and economic development—the Transportation Manufacturing Action Plan, or TMAP, task force—to examine options for expanding the domestic production of advanced transit systems, vehicles, clean trucks, and their component parts. Based on input from the task force, TMAP calls for a comprehensive strategy to boost domestic transit and freight manufacturing that starts with increasing current federal investment to $30 billion per year for public transit and $10 billion per year for intercity and high-speed rail.

Bringing transit and rail investments up to these levels will create 3.7 million jobs, double ridership over the next two decades, and build out a comprehensive intercity and high-speed rail system.[3] In addition, these investments will generate $60 billion in net annual gross domestic product, nearly $45 billion in additional worker income, and $14 billion in annual tax revenue, spurring additional growth throughout the economy.[4]

Currently, the United States lags in meeting public transportation needs and falls far behind its European and Asian counterparts in modernizing public transportation systems. In this context, federal policymakers will consider future investments to modernize public transit infrastructure. If these investments are done correctly, they will create new opportunity for American manufacturers.

More than 600,000 jobs in the manufacturing sector alone would be created by increasing annual federal public transit investments to the levels recommended above as part of the authorization of a comprehensive U.S. transportation investment strategy. Realizing this potential manufacturing job growth and restoring productive capacity is essential to broader U.S. economic recovery because manufacturing drives innovation and wealth creation across the entire economy. During the current recession, the United States has lost close to 15 percent of its total manufacturing jobs.[5] This loss has had profound effects on the larger economy. The manufacturing sector is a powerful driver of overall economic innovation and wealth creation, generating 70 percent of all private-sector research and development spending and 90 percent of all U.S. patents.[6] In fact, one higher-tech manufacturing job, such as those available in advanced transportation equipment, will support up to 16 additional jobs in other sectors.[7]

Last year, new investments in public transit seeded the domestic advanced transportation manufacturing industry. American Recovery and Reinvestment Act investments in public transit put more than 12,000 new buses, rail cars, and paratransit vans into service, supporting over 175 jobs at the Gillig bus manufacturing facility alone.[8] In 2009, United Streetcar Company produced the first 100 percent U.S.-made streetcar in 60 years. And targeted investments in clean transportation manufacturing from the Department of Energy will soon support 100 manufacturing jobs at a new Allison Transmission facility capable of producing more than 20,000 hybrid propulsion systems annually for buses and trucks.[9]

In order to fully reap manufacturing job-creation benefits, transit investments must be accompanied by measures that strengthen domestic production capacity. Since the passage of the last transportation reauthorization, over $10 billion has gone toward the purchase of public transit vehicles, track, and supporting equipment manufactured abroad.[10] With an estimated 27,600 transit buses, 4,000 passenger rail cars and locomotives, and 220 light rail cars in need of replacement over the next six years, America simply cannot afford to continue purchasing this equipment overseas.[11]

It is time to embrace a 21st century transportation plan: one that creates millions of American jobs; provides increased transportation options and alternatives to fossil fuels; and recognizes our potential to invent and manufacture cleaner vehicles and transit systems here at home, instead of sending our dollars overseas. The Transportation Manufacturing Action Plan recommendations, outlined below, do just that. The recommendations present a comprehensive plan to scale up investments in public transit, rail, and clean freight movement, while simultaneously building up vehicle, system, and component part manufacturers and the jobs that they support.

Spur demand for transit vehicles, systems, clean trucks, and their component parts

Creating new domestic manufacturing jobs in the clean transportation sector begins by ensuring strong and reliable domestic demand for rail, public transit, and clean freight. To realize this opportunity, we must:

- Invest $30 billion in public transit and $10 billion in intercity rail annually to double public transit ridership and connect our nation's communities with modern and efficient rail service.
- Expand competitive, mode-neutral financing approaches to leverage greater state, local, and private transportation investment, reduce energy consumption, and support domestic manufacturing.
- Develop a national freight plan and upgrade our nation's freight vehicle fleet to support clean freight movement.

Invest $30 billion in public transit and $10 billion in intercity rail annually to double public transit ridership and connect our nation's communities with modern and efficient rail service.

Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), less than 20 percent of total federal transportation spending is invested in public transportation.[21] This has left our transit systems underdeveloped and poorly maintained compared to those of our international competitors. Today, almost 30 percent of America's public transit assets are in poor or marginal condition. An immediate investment of over $77 billion is needed just to bring existing systems into a state of good repair.[22] Clearing this backlog is essential to ensuring the safety and reliability of our existing systems, but that alone is not enough. We must also make investments to accommodate a new generation of riders.

To double public transit ridership over the next two decades, bring our existing systems into a state of good repair, and increase demand for American manufactured goods, the next transportation authorization should invest $30 billion annually at the federal level in public transit infrastructure and vehicles.[23] To ensure these investments yield the greatest possible reductions in energy use and greenhouse gas emissions, investment must be linked to performance measures that target reductions in greenhouse gas emissions.[24]

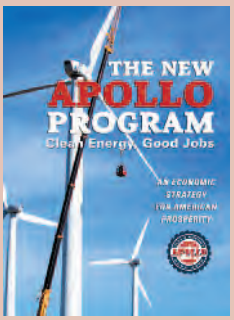
In addition to expanding transportation options in our nation's cities, metropolitan areas, and rural areas, we must also connect these places to one another with an expanded and modernized intercity and high-speed rail system.

The National Surface Transportation Policy and Revenue Study Commission estimated in 2008 that an annual investment of more than $8 billion was needed to support an improved national rail network through 2050. That figure included the construction of

Why We Must Re-establish America as a Manufacturing Leader

- There are currently more than 12 unemployed workers for every U.S. manufacturing job opening, an unemployment rate two times higher than the overall economy.[12]
- Manufacturing jobs offer a pathway to the middle class for the 68 percent of American workers with less than a four-year college degree. These jobs pay 21 percent more in wages and benefits than the average for the entire economy, and they more often provide health, pension, and other benefits.[13]
- More than 56,000 U.S. factories have closed or moved overseas in the past 10 years, and an additional 90,000 manufacturing firms are now at risk of going out of business.[14]
- Our trade deficit in manufactured goods rose to over $440 billion in 2009, a consequence of U.S. firms steadily switching from domestic to overseas production. This trend accounts for almost 60 percent of the reduction in manufacturing employment.[15]
- Despite its decline, manufacturing still represents nearly 8 percent of national employment and about 12 percent of the nation's gross domestic product.[16]
- Manufacturing is responsible for 70 percent of all private-sector research and development spending and 90 percent of all American patents.[17]
- Manufacturing is a productivity powerhouse and major driver of economic growth. Between 1997 and 2005, labor productivity in manufacturing grew 60 percent more than in the economy as a whole.[18]
- On average, each manufacturing job supports 2.5 jobs in other sectors, and, at the upper end, each high-tech manufacturing job supports 16 jobs. By contrast, lower paid service sector jobs support no more than 1.6 associated jobs each.[19]
- Every dollar in final sales of manufactured products supports $1.37 in other sectors of the economy, compared to about 50 cents for every dollar of activity in the financial services sector.[20]

The Apollo Alliance Clean Transportation, Good Jobs Program



The Apollo Alliance is a strong coalition of unlikely and diverse interests—including labor, business, environmental, and community leaders—dedicated to advancing a bold vision for an American economy that prioritizes clean energy and good jobs. Because more than 70 percent of our nation's oil use is related to transportation, improving the efficiency and sustainability of our transportation system is a key component of this vision.

In September 2008, Apollo released the *New Apollo Program*, a comprehensive economic investment strategy to build America's 21st-century clean energy economy, create more than 5 million high-quality green-collar jobs, and establish America as the global leader of the new clean energy economy.

Several recommendations in the New Apollo Program speak to the transportation sector:

- **Connect America's 21st-century neighborhoods and cities with world-class transit systems.** America must make a major commitment to build walkable, transit-oriented communities and to expand transit options both within and between cities, including light rail, bus service, bicycle lanes and services, and intercity and regional rail—all linked together to improve the ease and affordability of riding transit.
- **Strengthen and improve America's transportation infrastructure by "fixing it first."**

Roads and bridges—the backbone of our metropolitan areas and interstate economy—are falling apart. The United States must make maintenance of existing highways, bridges, and roads the highest priority in roadway construction policy by incorporating "fix-it-first" priorities into the transportation bill and all other transportation funding measures.

The *New Apollo Program* also recommends direct investments to retool and retrofit America's manufacturing sector and allow it to capture the clean energy manufacturing work of the future.

In March 2009, Apollo also released the *Green Manufacturing Action Plan*, which was developed by representatives from academia, industry, labor, and environmental groups. *GreenMAP* included a set of federal policy recommendations to spur domestic clean energy manufacturing and increase the energy efficiency of our existing plants. Some of these recommendations are incorporated into U.S. Senator Sherrod Brown's proposed Investments for Manufacturing Progress and Clean Technology, or IMPACT, Act, and were included in the American Clean Energy and Security Act, or ACES, of 2009 that passed the House of Representatives in June 2009.

As the nation begins seriously debating future transportation policies and investments, the *Transportation Manufacturing Action Plan* will inform policymakers as to how the right transportation investment choices made today will benefit American workers and businesses, and our global environment, for years to come.

just one high-speed rail line.[25] Since then, planning and development for several new high-speed rail corridors have advanced in California, Florida, and the Midwest, aided by the $8 billion invested in high-speed rail through the American Recovery and Reinvestment Act, or ARRA.[26]

Going forward, $10 billion each year will be needed to fully implement ARRA-funded projects and develop a modern high-speed and intercity rail system in the United States. A long-term commitment to invest in high-speed rail at this scale will achieve several goals. First, a multi-year commitment of public investment will send a signal that will spur private investment by rail and component part manufacturers—both by U.S and foreign-owned companies—and support hundreds of thousands of manufacturing jobs. Second, rail investment will dramatically expand domestic ridership if funds are targeted toward rail corridors with the appropriate density, economic activity, and existing intercity travel markets.[27] Finally, increased funding will support a wide range of operations and maintenance jobs, which have traditionally been career-track, living-wage positions. New rail investments should maintain the high safety, health, and regulatory standards that currently apply to all rail workers to ensure that new positions continue to be high-quality jobs that support the safety and security of American railroads.

Expand competitive, mode-neutral financing approaches to leverage greater state, local, and private transportation investment, reduce energy consumption, and support domestic manufacturing.

The next federal transportation bill will be a long-term investment of hundreds of billions of dollars in our nation's infrastructure and economy. At a time of historic unemployment across the economy and depression-level unemployment in blue-collar labor markets, we must ensure that these investments yield the greatest possible economic benefit.

For this reason, we must expand innovative infrastructure financing approaches that can leverage even greater state, local, and private transportation investment, including loan guarantees and other forms of credit enhancement that can be provided through an infrastructure bank. Combined with a reliable source of ongoing federal public transportation funding, an infrastructure bank can be particularly useful in securing the capital needed for large-scale transit projects and supporting new approaches to state and local infrastructure financing.

One way to do this is to reform the Transportation Infrastructure Finance and Innovation Act, or TIFIA, program, which already provides federal credit assistance to surface transportation projects of national and regional significance.[28] Expanding TIFIA beyond its current $122 million annual allocation, strengthening its performance criteria, and moving it from the Federal Highway Administration to the Office of the Secretary of Transportation could encourage greater transit investment at the state and local levels.

In addition, we must build upon successful programs developed

through ARRA and lay the foundation for a performance-based transportation system by expanding competitive transportation infrastructure grants that are mode-neutral and target reductions in energy consumption and greenhouse gas emissions.

ARRA recognized a mode-neutral and energy-efficient approach to transportation investments by creating both the Transportation Investment Generating Economic Recovery, or TIGER, and Transit Investments for Greenhouse Gas and Energy Reduction, or TIGGER, programs. These competitive grant programs funded transportation projects across a wide range of modes and provided a significant share of funds to freight and passenger rail improvements and transit projects, including upgrades to transit vehicle rolling stock. Demand for TIGER and TIGGER grants far outstripped the resources available, with the DOT receiving over 1,500 proposals that totaled more than $58 billion, despite allocations of just $1.5 billion for TIGER and $100 million for TIGGER.[29] Similar competitive grants—such as Greenhouse Gas and Energy Deployment and Demonstrations grants proposed in the president's fiscal year 2011 budget—must be expanded to develop the market for cleaner transportation technologies.[30]

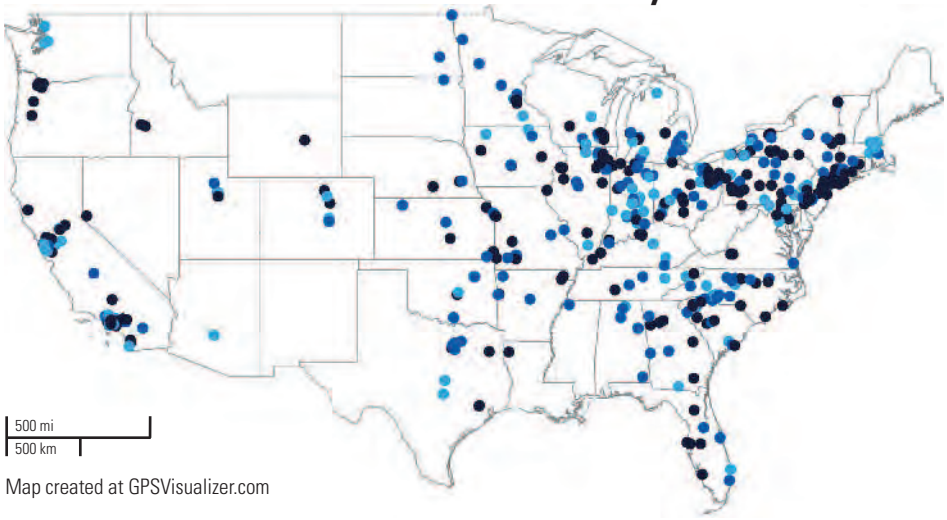
To maximize the benefits of our investment, all new competitive infrastructure financing program must do two things. First, projects supported by these programs should be subject to strong selection criteria that evaluate economic and environmental benefits, including equity and job quality goals, and ensure payment of a prevailing wage. Second, they must give preference to projects that use vehicles, infrastructure, and supporting equipment with higher-than-required domestic content. As new infrastructure financing approaches are considered, the full range of jobs that can be supported by infrastructure investments must be taken into account, including those in the manufacturing supply chains. We can build new infrastructure while simultaneously rebuilding our domestic manufacturing sector by providing preferences or incentives in competitive programs for those projects purchasing vehicles and equipment that have higher domestic content.

Develop a national freight plan and upgrade our nation's freight vehicle fleet to support clean freight movement.

In addition to modernizing and expanding U.S. transit and passenger rail infrastructure, federal policies can create jobs and promote environmental sustainability by cleaning up America's freight sector. The freight sector today accounts for approximately one-quarter of U.S. transportation-generated greenhouse gas emissions and petroleum-based fuel consumption.[31] Widespread deployment of more advanced medium- to heavy-duty trucks could generate up to 124,000 jobs by 2030. Investments to support the manufacture of modern and efficient freight rail cars could generate up to 50,000 new jobs.[32]

The United States already leads the world in truck and freight-rail manufacturing. Forthcoming fuel-efficiency standards for medium- and heavy-duty trucks will create new demand for cleaner technologies in this sector. These advances in the freight market will also support more manufacturing jobs in the passenger sector due to overlapping supply chains, particularly for buses and trucks. Thus, a comprehensive strategy to expand the transit manufacturing sector must also address the freight market.

Passenger Railcar and Locomotive, Transit Bus, and Clean Truck Manufacturers and Assembly Locations



Map created at GPSVisualizer.com

- **Passenger Railcar, Locomotives and Component Manufacturing and Assembly Locations**
- **Transit Bus and Component Manufacturing and Assembly Locations**
- **Hybrid Truck and Component Manufacturing and Assembly Locations**

* While attempting to include as many locations as feasible, the data on this map is not exhaustive. Source: Duke Center on Globalization, Governance & Competitiveness

Manufacturing Job Creation Under TMAP Investment Scenario by State (Top 10)

Source: Economic Policy Institute

State	Jobs
California	64,342
Texas	41,709
Ohio	33,385
Illinois	29,770
Pennsylvania	29,079
Michigan	25,969
New York	24,109
Indiana	23,572
North Carolina	23,220
Wisconsin	22,236

Los Angeles Clean Ports Program Benefits Environment, Workers, and Local Community while Creating Demand for Clean Trucks

Up until 2008, diesel exhaust pollution from trucks and other vehicles at the Port of Los Angeles was so severe that it threatened local residents' and truck drivers' health. But, thanks to the adoption of a visionary Clean Air Action Plan, or CAAP, in late 2006 and the hard work of the Coalition for Clean and Safe Ports—a coalition of labor unions, environmental organizations, and community groups—the Port of L.A. can now boast that it has the most successful clean truck program in the country. As Fred Potter, a vice president at the International Brotherhood of Teamsters, testified to Congress in May, "The results are undeniable. The Port of Los Angeles' comprehensive Clean Truck Program is the only approach that has transformed a local port fleet, bringing thousands of brand new cleaner trucks into service, and simultaneously lifting drivers' economic circumstances up."

The Los Angeles Port's Clean Truck Program was the first program to be initiated per the CAAP. The program uses a combination of regulations and incentives to gradually phase out older, polluting trucks with newer trucks that meet more stringent emission standards. Since implementation began in October 2008, more than 6,600 clean trucks are in operation at the port, including at least 600 natural gas, electric, and hybrid trucks. Upgrading the truck fleet will reduce diesel particulate matter emitted by trucks at the port by at least 30 tons per year, the equivalent of removing nearly 250,000 automobiles from Southern California highways. According to John Holmes, deputy executive director of the Port of Los Angeles, polluting emissions have already decreased by 70 percent since the program began.

In addition to these environmental and health benefits, the Clean Truck Program has also created a new, expanded market for cleaner truck technologies. The Clean Truck Program provided more than $56 million in incentive payments to licensed motor carriers to help them purchase new and alternative fuel trucks, which has leveraged more than $600 million in private investment by trucking companies. Truck sales were down by 60 percent nationwide in 2009, yet truck dealers near the Port of L.A. saw their business rise by one-third because of the Clean Truck Program.

The Clean Truck Program funnels grants through trucking companies and encourages them to bring drivers on as employees, in recognition of the fact that port truck drivers, who mostly work as independent contractors, would not be able to afford retrofitting or replacing their trucks. As employees, drivers earn better wages and are eligible for benefits provided for under federal and state law, including unemployment insurance, workers' compensation, Social Security contributions, and worker safety protections.

The Clean Truck Program also generates spillover benefits in the local economy. Under a recently brokered agreement, Balqon Corporation, a manufacturer of heavy-duty electric trucks, tractors, and electric drive systems, will work with the Port of L.A. and the South Coast Air Quality Management District to develop and test zero-emissions electric trucks that run on advanced-technology lithium-ion battery packs. This agreement helped secure the development of a new manufacturing facility near the port, in Harbor City, California, which is creating jobs for local residents.

Unfortunately, the ongoing success of the Port of Los Angeles Clean Truck Program is in jeopardy. Without clarification regarding state and local entities' jurisdiction to regulate trucking companies, successful clean truck and good jobs programs like the L.A. Port model may be stopped short of full implementation. To address these concerns, legislation introduced this summer would amend the Federal Motor Carrier Act to allow individual ports to enact and enforce clean-truck programs beyond current federal guidelines.[40]

To build on the strength of our existing freight manufacturing sector, we must develop a freight plan that identifies corridors and hubs of national significance and strategically invests in infrastructure projects that improve freight transportation reliability and throughput, and reduce fuel consumption, greenhouse gas emissions, and localized air pollutants. Because 40 percent of all jobs generated through freight infrastructure investments are in manufacturing, these investments will create high-quality manufacturing jobs while reducing the effects of harmful emissions on low-income neighborhoods that generally surround freight corridors.[33]

The state of Virginia has already embraced an approach that incorporates strategic freight rail improvements into a comprehensive state transportation strategy through its Rail Enhancement Fund.[34] Established in 2005, the Rail Enhancement Fund will contribute approximately $761 million toward eight major rail improvement projects between FY 2010 and FY 2035.[35] When completed, Virginia's rail enhancements are expected to increase freight and passenger rail market share by 8 percent and remove 200,000 freight trucks from state roads each year.[36]

To make trucks and rail cars running on new infrastructure more efficient, the United States must provide incentives for the purchase of diesel retrofit components, natural gas and other alternative-fuel trucks, and modern freight switcher locomotives and rail cars, technologies that can reduce emissions and fuel use by up to 50 percent.[37] These incentives could be provided through expanded funding for the Diesel Emissions Reduction Act, Congestion Mitigation and Air Quality Improvement programs, or through more widely applicable consumer incentives, as has been proposed for natural gas and hybrid trucks.[38] To speed the adoption of cleaner truck technologies among publicly owned fleets, any incentive program should also include a voucher or direct rebate component allowing governmental purchasers not eligible for tax credits to realize the same reduced purchase costs as private purchasers.

Many of the nation's oldest and most-polluting trucks are used at our nation's ports. That's why we must amend the Federal Motor Carrier Act to specifically allow states, cities, and port governing bodies to regulate the emissions of trucks entering and exiting port facilities. Successful port clean-up plans such as the Port of Los Angeles' Clean Air Action Plan, or CAAP, can be powerful tools to drive a national market for cleaner trucks. The CAAP employs a combination of regulations and incentives to retrofit or retire all 16,800 "dirty" diesel trucks operating at the port by 2011, while creating high-quality jobs for port truck drivers.[39]

Legal uncertainties are currently delaying attempts to replicate this successful model. Yet it is essential to fully implement efforts such as the Los Angeles Port's CAAP. These programs can serve as models for other localities seeking to ensure job quality and worker protections while reducing port emissions, especially near communities disproportionately affected by harmful emissions.

Support domestic manufacturers and American workers in making the vehicles, systems, and component parts demanded by clean, efficient public transit and freight movement systems

We must enact strong policies that help domestic manufacturers meet new demand for the production of vehicles, systems, and their component parts to maximize the economic benefits of transit and freight infrastructure investments. To do this we must:

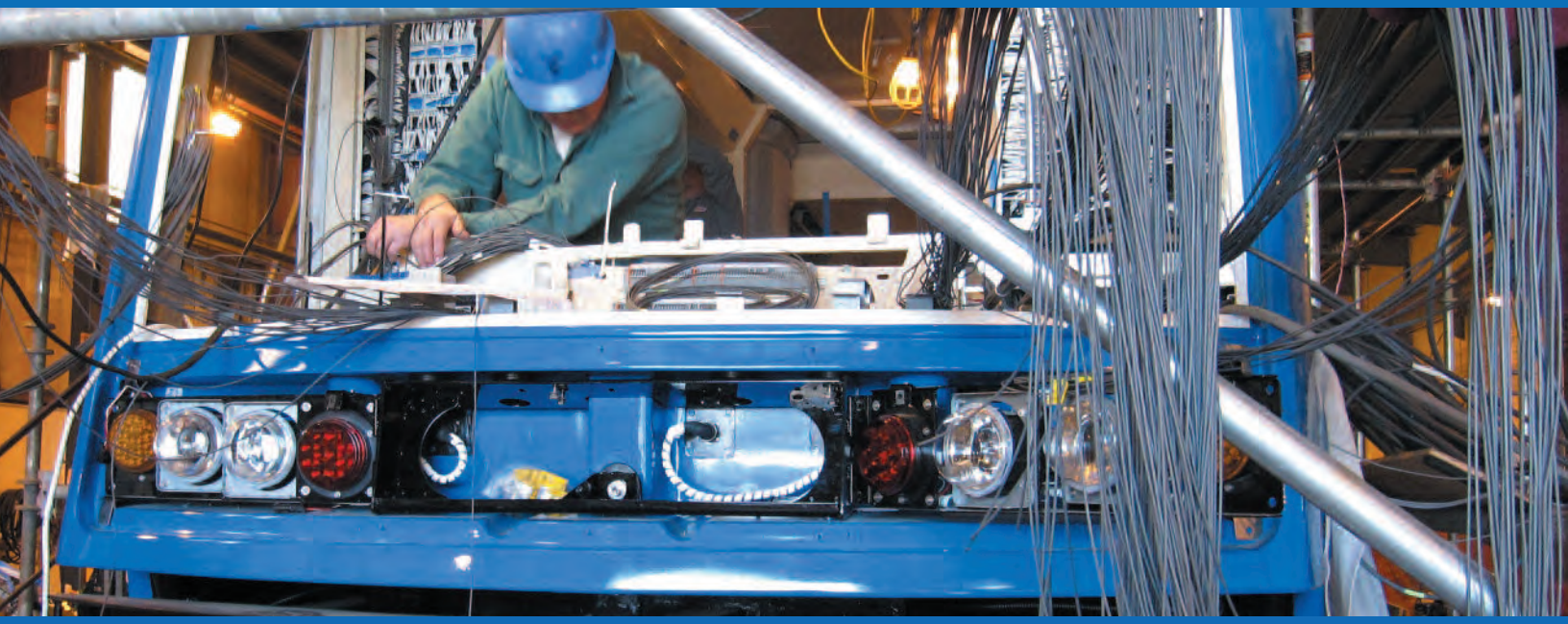
- Help domestic manufacturers retool and make new investments in the production of transit systems, vehicles, clean trucks, and component parts to create American jobs.
- Increase transparency and accountability of current standards and provide incentives for greater domestic content to support domestic manufacturers.
- Encourage product standardization and improve procurement practices to make the transit, rail and clean truck manufacturing sectors more efficient and save taxpayers money.
- Invest in research and development to invent and produce the next generation of clean transit, rail, and trucking technologies in America.

Help domestic manufacturers retool and make new investments in the production of transit systems, vehicles, clean trucks, and component parts to create American jobs.

The United States is home to five public transit bus manufacturers, 15 railcar builders, and a wide range of truck manufacturers. Yet there are still gaps in the supply chains for clean transit and freight vehicles. A recent analysis by Duke University found that supply bottlenecks exist for propulsion, electronics, air conditioning, and brake systems in the rail sector, and only a handful of suppliers exist for key components such as engines, transmissions, and axles in the bus industry.[41] In spite of existing domestic content requirements, many higher-value-added manufacturing activities are still performed overseas.[42]

We must bring high-value transit and rail manufacturing back to the United States and fill out the domestic supply chains for clean transportation system component parts to realize the full economic benefit of our transportation investments. According to recent research by Northeastern University, improving our domestic supply chains for buses and rail cars could increase total job creation from the purchase of these vehicles by up to 30 percent.[43]

To capture these jobs and strengthen domestic supply chains, we must provide direct financial support to domestic manufacturers of clean transportation systems. Targeting this assistance towards both the transit and freight sectors will help rebuild our transit supply chains and enable manufacturers to retool to meet the growing demand for clean trucks, which will result from the



American-Made Streetcars: Portland Company Rebuilds Lost Industry

United Streetcar, a union company in Portland, Oregon, and a wholly owned subsidiary of Oregon Iron Works, built the first American-made streetcar in over half a century, which they unveiled in July 2009. The company already has a contract to build 13 of its streetcars for the cities of Portland and Tucson, Arizona.

At the unveiling ceremony, Transportation Secretary Ray LaHood called Portland the transportation, streetcar, and livable community capital of the United States. "I believe this is the dawn of a new era for public transportation in the United States," said LaHood. "A new opportunity to claim 'Made in America.' It's a chance to generate good-paying union jobs right here in the region."

United Streetcar, LLC was formed in 2005 after Chandra Brown, the company's president and a vice president at parent company Oregon Iron Works, made the startling discovery while talking to friends that modern streetcars were not manufactured by American companies in the United States, and hadn't been for 58 years. Given the variety of complex products that Oregon Iron Works has manufactured since 1944, Brown was sure that the company could handle streetcars as well.

United Streetcar's ultimate goal is to provide modern streetcars to cities nationwide. Portland and Tucson are just the first. "Knowing the huge success of the Portland streetcar line, we were positive that streetcars were on the brink of exploding into a large and extremely viable market," says Brown, a 15-year veteran of Oregon Iron Works. "We thought that a separate website and company specific to streetcars would be the best way of reaching out around the country in this new marketplace."

Brown adds that more than 65 U.S. cities are currently looking into implementing streetcars. Yet it's Portland that leads the way in public transportation.

United Streetcar's product is truly American made. To meet "Buy America" requirements, at least 60 percent of the components had to be domestically produced by American companies. Brown says that United Streetcar's product is approximately 70-percent U.S.-made, with components coming from vendors in more than 20 states. The steel streetcar shell is fabricated in Portland; a company in Pennsylvania finishes the trucks; a company just down the freeway from Portland provides the fiberglass; and the seats come from Michigan.

One part of the streetcar that is not American made is the propulsion system, because currently there is no domestic manufacturer of streetcar propulsion systems. But this will soon change. In April, United Streetcar and the Tri-County Metropolitan Transportation District of Oregon received a $2.4 million Federal Transit Administration grant to work with Rockwell Automation to develop a domestically produced streetcar propulsion system. Once an American propulsion system is ready for order, United Streetcar's vehicles will be 90 percent U.S.-made.

"Instead of outsourcing jobs, we are 'insourcing' jobs, bringing them back to the States," Brown says. "This is key to keeping Portland's manufacturing industry thriving, as well as promoting American-made products."

first-ever fuel efficiency regulations in the truck and bus markets that the Obama administration announced this year.[44]

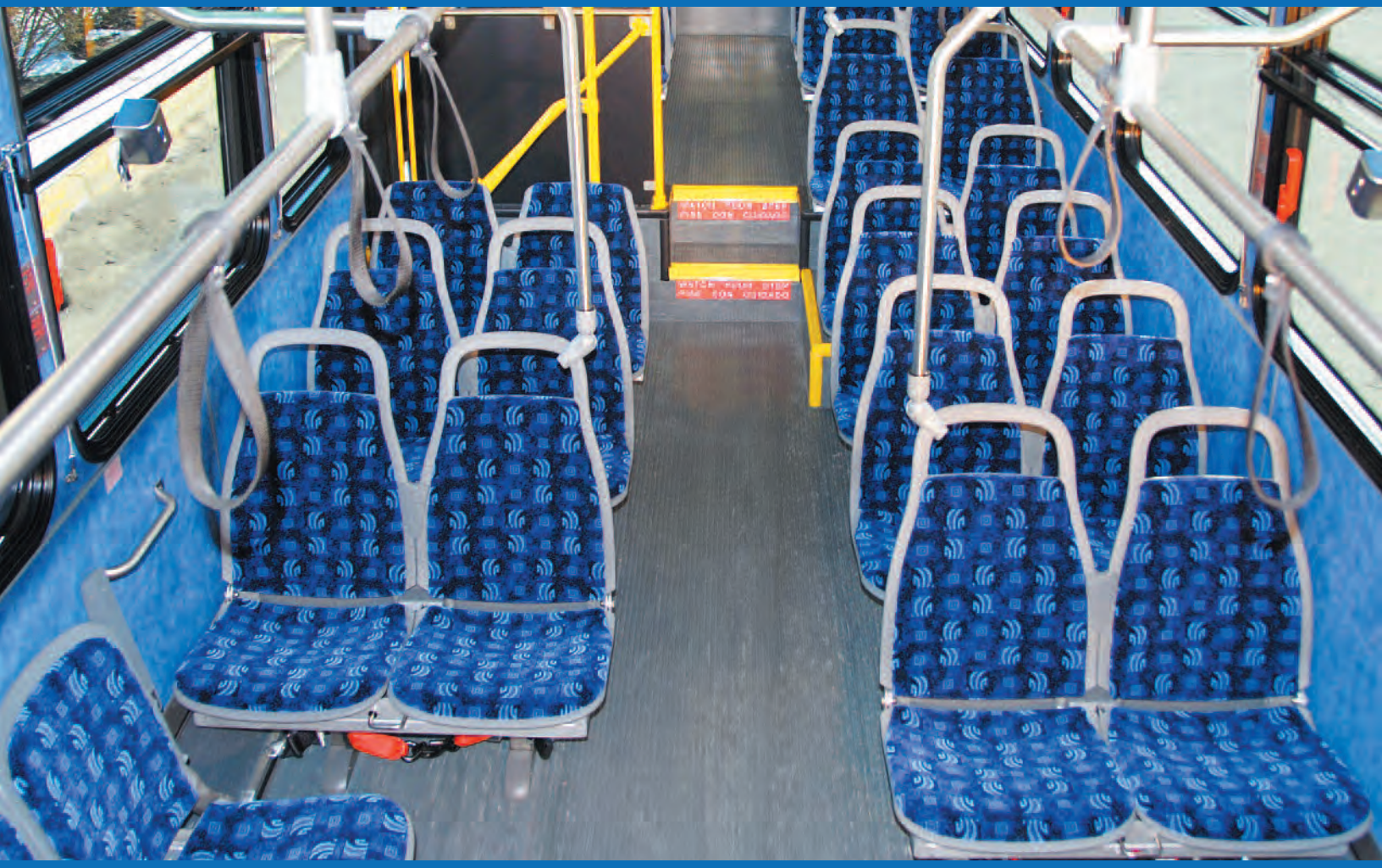
Federal assistance could take a number of different forms, including direct grants, loan guarantees, or low-interest loans. One option is to expand the existing Advanced Technology Vehicle Manufacturing, or ATVM, Loan Program, created by the Energy Independence and Security Act of 2007.

The ATVM program already provides loans to passenger car and component part manufacturers to support the retooling or expansion of domestic manufacturing facilities, mitigate engineering costs, and invest in workforce training. An expansion of this program, which is currently authorized to provide up to $25 billion in loans, could be paired with broader eligibility to support manufacturers throughout the supply chain for low-emissions transit vehicles, rail cars, and clean truck technologies. Preference for federal support should be given to manufacturers that are connected to strong domestic supply chains and produce vehicles and component parts that demonstrate the potential to significantly reduce energy use beyond industry standards, and to small- and medium-sized manufacturers, who have more difficulty gaining access to capital.[45] To ensure that any federal assistance is targeted to support the creation of good, family-supporting jobs, living wage standards must accompany any federal assistance to build clean transportation supply chains.

Increase transparency and accountability of current standards and provide incentives for greater domestic content to support domestic manufacturers.

Many of the world's largest economies, including China, Canada, and Europe, attach minimum domestic content standards to their transportation investments to support local industry and leverage national investments into greater employment gains.[46] In the United States, domestic content requirements were added to federal transportation legislation in 1978 to support manufacturers of buses, trains, and their component parts. Current law requires that all projects funded by the Federal Transit Administration, or FTA, must use 100-percent domestically produced steel, and all rolling stock must include a minimum 60 percent domestic content and be assembled in the United States.[47] These measures provide critical support for domestic and foreign-owned companies that manufacture buses, trains, and their component parts in the United States.

Existing standards ensure that a minimum share of bus and rail components is domestically sourced; however, several exceptions allow for these important requirements to be waived. The process for granting waivers is inconsistent, lacks transparency, and fails to take into account the impact of granting waivers on domestic employment.[48] As transportation investments expand, accountability must improve to ensure that manufacturers meet current standards and incentives and supports should be provided



Recovery Act Creates Jobs in the Transit Supply Chain

American Seating Company has been designing and manufacturing chairs and seats in Grand Rapids, Michigan for more than a century. During that time, it has supplied seats for buses and trains, as well as classrooms, offices, stadiums, and theaters. Like most companies, American Seating has been affected by shifts in the economy, and the current recession was no exception. But in the summer of 2009, the company experienced a major upswing in contracts for seats in transit buses. As a result, American Seating has not only rehired 40 employees it had laid off, but it has also added 11 new workers.

All this, says David McLaughlin, the company's vice president and general sales manager, is thanks to the $8.4 billion investment in transit capital from the American Recovery and Reinvestment Act of 2009. Public transit funding has taken a hit as the ongoing recession has tightened the budgets of already cash-strapped state and local governments. But over the last nine months, federal stimulus dollars for transit capital investments have gone to local transit authorities, and these agencies have increased their purchases of new buses. Bus assembly plants received more orders and called on American Seating to manufacture the seats to go in these new transit vehicles.

Seats for the transportation industry, which comprises all mass transit vehicles except airplanes, account for approximately 60 percent of American Seating's business. In 2009, the company built seats for 4,400 buses, and it expects to produce seats for close to 5,000 buses in 2010. Of the more than 9,000 buses assembled between 2009 and 2010 that contain seats made by American Seating, McLaughlin estimates that 35 to 40 percent will be hybrid or alternative-fuel buses. More efficient transit is a priority for the company, which has changed its operations to reduce its impact on the environment.

As members of the United Auto Workers, American Seating's workers have good, family-supporting jobs and earn $12 to $18 an hour with generous benefits. Their benefits include a gain-sharing program, which allows workers to actively participate in and benefit from the company's improved performance. Along with the 11 full-time equivalent jobs American Seating added last year, the company estimates that its suppliers—approximately 50 percent of which are in the Great Lakes states—have added 64 FTE jobs thanks to Recovery Act transit investments.

"We feel that it's an absolute necessity to keep funding public transit at consistent, reliable levels," McLaughlin said. "Luckily now all of the politicians realize that investment in public transportation is a sound economic and social cause…and we just hope that support continues."

to increase domestic content in advanced public transit and freight systems.

To start, Buy America and Buy American standards for all federal transportation investments must be clarified, streamlined, and made more transparent by posting rules and guidance on a central website. This same site should host all requests for waivers, allowing domestic manufacturers a better opportunity to respond to claims that products or materials are insufficiently available or cost too much. And within a month after the waiver is granted, the decision and justification should be published in the federal register and on this website.

Second, the full effects of waivers granted should be compiled in regular federal reports that contain the number and value of domestic content waivers, the reasons that the waivers were issued, and estimates of total American jobs sent overseas as a result.

Federal agencies should also scale up oversight and enforcement to hold companies and transit agencies accountable for compliance with domestic content laws. As a basis for this increased oversight, the Department of Transportation should issue standard accounting practices for measuring domestic content to improve consistency. The DOT should also clarify definitions of domestic content in components and subcomponents, which should include guidelines for what can be included in product cost calculations.[49]

Finally, new competitively administered transportation investments should also include preferences for projects that exceed domestic content requirements, encouraging transit agencies to purchase vehicles, systems, and supporting equipment with a greater share of domestic content.

To assist agencies and manufacturers seeking to increase domestic content, the DOT should engage the Hollings Manufacturing Extension Partnership, or MEP, network to expand the number of domestic suppliers to the bus and rail industries. The Department of Energy has already established a pilot project with the MEP to respond to Buy American waiver requests related to ARRA implementation. The pilot project has successfully identified U.S. manufacturers that can currently meet demand for

Moving Cleaner Goods: The Hoosier Heavy Hybrid Initiative and Allison Transmission Partner to Produce Clean Trucks

Imagining hybrid vehicles in a green economy invariably brings to mind the iconic wedge shape of the compact Toyota Prius. Yet passenger transportation comprises only a part of the broader transportation sector; trucking, for instance, remains the most widely used method to move goods across America. Trucks consume more than 2 million barrels of oil a day, and their fuel economy averages just over 6 miles per gallon. They generate 20 percent of the transportation sector's greenhouse gas pollution.

Indiana's Hoosier Heavy Hybrid Initiative aims to tackle precisely this problem. A project of the Energy Systems Network, or ESN, an Indiana consortium consisting of partners from industry, government, and universities, the initiative underscores the growing movement toward manufacturing the component parts of a new generation of clean-energy vehicles in the United States.

Because the future of the U.S. auto industry will depend on developing efficient hybrid and electric vehicles, the Hybrid Initiative will draw on Indiana's extensive manufacturing experience to build new electric motor systems. "There are certain unique skill sets Indiana has because of our long history of engagement in the auto industry," Indiana Economic Development Corporation Director Mitch Roob told the *Indiana Economic Digest* in an interview about the Energy Systems Network. "People that are looking at electric cars gravitate to people who have experience with electric cars."

One such manufacturer tapping into Indiana's strong auto workforce is the Indianapolis-based Allison Transmission, Inc. As a leading manufacturer of the hybrid propulsion systems that power trucks and buses, the company has a 60-year history of building transmission systems. Since 2003, it has built more than 3,000 hybrid systems for buses that have saved 11.7 million gallons of diesel fuel and reduced carbon dioxide emissions by 116,000 metric tons.

Allison plans to expand its hybrid operations to include commercial trucks through partnerships with the ESN, Department of Energy, and commercial channels. Under the DOE's hybrid initiative, Allison is collaborating with electronic drive component part manufacturers Remy International and Delphi Electronics and Safety. With the support of more than $150 million in matching grants from the American Recovery and Reinvestment Act, the three companies are aligning their unique expertise in different areas of the commercial truck hybrid propulsion system.

The partnership is already creating jobs in Indiana's manufacturing sector. Allison's new Indianapolis factory alone will employ 100 manufacturing workers once it reaches full capacity. As United Auto Workers members, these workers will receive family-sustaining wages as well as health and pension benefits.

Eventually the Indianapolis factory will turn out 20,000 commercial-duty hybrid propulsion systems annually. And this is just the beginning. As Lawrence E. Dewey, the Allison Transmission CEO, declared, "We will deliver a new generation of hybrid propulsion solutions to the transportation industry."

Developing a Skilled Workforce for the Transit Industry

The *Transportation Manufacturing Action Plan* proposes new large-scale investments in public transportation and clean freight movement. These investments offer the opportunity to support a skilled workforce and create good, living-wage jobs that provide pathways out of poverty and into new careers for historically disadvantaged groups. To achieve these objectives, we support standards for federally funded transportation projects that set goals for contracting with woman-, minority-, and veteran-owned businesses. We also recommend developing construction careers demonstration projects that provide opportunities for disadvantaged communities and ensure strong partnerships with registered apprenticeship and pre-apprenticeship programs.[51]

In addition, to ensure that new, advanced technology transit vehicles purchased under these proposals function reliably and safely, we must address the transit industry's dramatic underinvestment in workforce development. Faced with dramatic funding shortfalls, our public transportation industry is spending a fraction of what it should on workforce development. To support stronger training efforts and safety performance, the public transportation industry should meet the goal set by the Federal Highway Administration of 3 percent of payroll going toward workforce development.[52] Strong preference should be given to joint labor-management training partnerships that offer high-quality, cost-effective training to transit and manufacturing workers.

energy-related products, or can retool to fill a supply chain gap.[50] Increasing support for the MEP program can expand its efforts to transit, rail, and clean truck supply chains and help U.S.-based manufacturers producing similar products retool to fill these gaps. Companies already in these supply chains would also receive help to implement new manufacturing processes, integrate new technologies, and remain competitive in the global marketplace.

Encourage product standardization and improve procurement practices to make the transit, rail, and clean truck manufacturing sectors more efficient and save taxpayers money.

Currently, transit agencies across the United States purchase vehicles and systems with unique specifications. Each agency puts out individual requests for proposals, or RFPs, for transit vehicles containing different specifications for vehicle length, door height, track width, and other features. Purchasing typically happens in one-time blocks using state-matched federal grants, creating a cycle of fits and starts in transit vehicle demand. Since each transit agency sets its own vehicle specifications, manufacturers must navigate complicated and widely varied RFPs. These differing standards present a challenge to achieving economies of scale that reduce costs; they also affect production stability and reduce resources for research and development.[53] In the bus sector, these variations in product specifications are estimated to raise procurement costs by 20 to 30 percent.[54]

New standards being developed under the coordination of the American Public Transit Association, or APTA, and by Amtrak will be an important first step toward stabilizing the market for transit vehicles and systems. The standards will also make it easier for U.S. suppliers to bring down costs and remain competitive. These standards may also facilitate pooled purchasing initiatives that could decrease cost per unit, increase order volume, and help achieve economies of scale.

Future transportation authorizations should not only support continued development and improvement of product standards for the bus and rail industries. They should also promote the use of these standards by providing incentives for projects that purchase compliant vehicles, where they are available. This could be accomplished by either increasing the federal share of transit capital purchases if industry-recognized standards are adopted, or by limiting the federal cost share on projects that fail to comply with industry-recognized standards.

Finally, to ensure that transit agency professionals use these standards, future transportation investments should also provide support for the development of a procurement training curriculum that incorporates product standards, guidance on coordinating pooled purchasing, and detailed information that will improve compliance with domestic content requirements.

Invest in research and development to invent and produce the next generation of clean transit, rail, and trucking technologies in America.

There will be a dramatic increase in domestic demand for advanced transportation technologies as our nation commits itself to large-scale investment in public transit and passenger rail and adopts fuel efficiency standards for medium- and heavy-duty buses and trucks. To ensure that these new technologies are developed and produced here in America, we must invest in a comprehensive research, development, and commercialization program for transit and clean freight vehicles and systems that links development of advanced transportation technologies to their domestic manufacture.[55]

Even small research and development investments can yield significant results. In April 2010, the Federal Transit Administration awarded a $2.4 million grant to the Tri-County Metropolitan Transportation District of Oregon, or TriMet, to help increase the domestic content of the streetcars used in Portland.[56] This investment is creating an entirely new U.S. industry by supporting an R&D partnership between United Street Car and Rockwell Automation to develop a domestically produced streetcar propulsion system—a market segment previously supplied only by foreign firms.

New R&D investments should target current gaps in domestic supply chains and technologies with the potential to reduce fossil fuel use and greenhouse gas emissions. These areas include advanced energy storage systems, lightweight materials, hybrid drive systems, alternative fuels, intelligent transportation systems, and information technology systems that improve operations efficiency, as well as others identified by industry-based consortiums.

It is important to ensure that these technologies are then manufactured in the United States. That's why investments to develop new basic technologies should be paired with support for the development of domestically produced prototypes; demonstration projects; early-stage commercial manufacturing to scale production; and testing of new vehicles and component parts in truck and transit fleets. This can be accomplished through an interagency program of collaborative research, development, and commercialization that mobilizes the full range of government resources and takes advantage of existing innovation clusters of industry, research, and government investment to develop regional approaches to expanding the American advanced transportation manufacturing sector.

Conclusion

Ten years into the 21st century, the United States is still guided by a transportation policy developed generations ago. To be competitive in the global economy of the future, we must commit to a new, comprehensive transportation strategy that meets our future transportation needs, reduces carbon emissions, and spurs the creation of a strong domestic transportation manufacturing sector. This strategy must include a combination of large-scale investment and focused public policies that scale up our nation's public transportation system, transition us to cleaner methods of moving our nation's goods, and position domestic manufacturers to lead in the manufacture of advanced public transit and freight vehicles.

The languishing U.S. economic recovery and deepening climate and energy crisis demand that we seize the current opportunity to reduce transportation emissions and create millions of good American jobs. In 1956, President Dwight Eisenhower laid the foundation for decades of American prosperity through a national transportation policy suited to the automobile age. Today we are on the cusp of an emerging low-carbon economy, and we must again use forward-thinking transportation policy to drive national prosperity. The Transportation Manufacturing Action Plan is a national strategy to do just that. Let's make it happen.

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Northeastern University
Kitty and Michael Dukakis Center for Urban and Regional Policy

Supporting Research for the Apollo Transportation Manufacturing Initiative

Reviving U.S. Rail and Transit Manufacturing: Investments and Job Creation, **Northeastern University and Worldwatch Institute**

Northeastern University and the Worldwatch Institute estimate potential manufacturing job creation in the transit bus and passenger railcar supply chains under various federal investment scenarios in the United States: current funding levels, increased funding levels, and internationally competitive funding levels. Building on the supply chain analyses conducted by Duke University, the study finds that the United States could gain over 79,000 jobs in rail and bus manufacturing and related industries if public transit were funded at a level that would double transit ridership in 20 years, and over 250,000 jobs if the United States were to invest at the same level as China. Employment gains across both rail and bus supply chains could increase by up to 30 percent if stronger domestic supply chains allowed for greater domestic content. The authors conclude that the nation needs a more coherent industrial policy to link public transportation and manufacturing goals.

U.S. Competitiveness in the Global Rail and Transit Industries, **Worldwatch Institute**

The Worldwatch Institute analyzes global rail industry trends and profiles four countries—Germany, Spain, Japan, and China—that have made major commitments to public transportation and offer important lessons for the United States. The report finds that at least half a million people are directly employed in rail vehicle manufacturing within these countries. The creation of strong national rail manufacturing industries depends, according to this report, to a significant degree on a strong and steady domestic market, driven by substantial and sustained investment in rail and transit infrastructure.

U.S. Manufacture of Rail Vehicles for Intercity Passenger Rail and Urban Transit, **Duke University Center on Globalization, Governance & Competitiveness**

The Center on Globalization, Governance & Competitiveness maps the United States supply chain for the passenger railcar industry. The study details nearly 250 existing manufacturing locations in 35 states, which are currently producing rail vehicles or component parts. These manufacturers operate in many domestic industry subsectors. However, according to the study, there are gaps in the supply chain and many higher value-added activities are performed abroad. The domestic passenger and transit rail supply chain currently supports between 10,000 and 14,000 employees, numbers that could grow if investments in public transit and intercity rail were increased.

Impact of Alternate Public Transit and Rail Investment on the Labor Market, **Economic Policy Institute**

The Economic Policy Institute analyzes the job creation effects of The Apollo Clean Transportation Manufacturing Action Plan policy recommendations. The study found that annual investments of $30 billion in America's public transit systems and $10 billion in intercity and high-speed rail would create 3.7 million direct and indirect jobs and more than 600,000 jobs in manufacturing over six years, the likely duration of a reauthorized transportation bill. Because this estimate does not include induced jobs created from income re-spending, the overall job impact of these investments would be much higher. The jobs supported through public transit and rail investments are largely middle class positions; more than half of them go to workers with a high school education or less. In addition, this funding scenario also supports a higher share of unionized jobs (50 percent more than the overall economy), which often translates into higher benefits and greater job security.

For copies of the reports and more information about the Apollo Transportation Manufacturing Initiative please visit:
www.apolloalliance.org/tmap

Our nation needs a new transportation policy that invests in expanded public transit and more energy-efficient transportation, including rail. Done right, these investments could mean a windfall of rail manufacturing jobs.

Apollo Alliance Chairman Phil Angelides, *Pittsburgh Post-Gazette*, July 2010

I believe this is the dawn of a new era for public transportation in the United States; a new opportunity to claim 'made in America.'

Ray LaHood, United States Secretary of Transportation, July 2009

Our nation needs policies that will save jobs, create new jobs and new industries, and revitalize manufacturing. Clean transportation policies that ensure our rail cars, buses, and clean trucks are made in the USA are an excellent vehicle for achieving these goals.

Richard Trumka, President, AFL-CIO

Investing in clean transportation has the potential to create entire new industries in the United States. My company is part of the re-creation of the U.S. streetcar industry, and we are not only creating jobs—we are "insourcing" high-wage manufacturing jobs back to the United States that were once overseas.

Chandra Brown, President, United Streetcar

The Apollo Alliance has been front and center nationally in linking climate change action with a social justice and labor agenda. The Apollo Alliance is a coalition of labor unions, environmental and community organizations, and business leaders focused on moving the nation toward energy efficiency and independence …
It was organized in 2003 with the idea that a national commitment of the magnitude of the Apollo space mission is necessary to achieving these goals.

Joan Fitzgerald, *Emerald Cities*, 2010

The Apollo Alliance promotes investments in energy efficiency, clean power, mass transit, next-generation vehicles, and emerging technologies, as well as in education and training. The overall goal is to reduce carbon emission and oil imports, while spurring domestic job growth. The Apollo Alliance has played a key organizing and coordination role.

White House Middle Class Task Force, February 27, 2009

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