14th Annual Freight and Logistics Symposium Minneapolis, Minnesota

Sustainability: Does it Make Cents?

December 3, 2010

A Summary Report

Sustainable practices can have a positive impact on the environment and on freight and logistic providers' bottom line, but they don't come without specific challenges, both financial and operational. The 14th Annual Freight and Logistics Symposium brought together representatives from the public and private sectors to address the economics of sustainable practices on the transportation industry. Laurie McGinnis (director of CTS), Meg Duncan (Council of Supply Chain Management Professionals–Twin Cities Roundtable president), and Ron Have (Minnesota Freight Advisory Committee president) opened the event by explaining that sustainable practices affect more than the environment—they also have financial and social implications. As the definition of sustainability evolves, the freight and supply-chain industries continue to learn about the role sustainability plays within their industries. Gina Baas (CTS assistant director of education and outreach) moderated the symposium.

Presenters:

Public Sector Freight Initiatives Update
Bill Gardner, Director, Office of Freight and Commercial Vehicle Operations, Minnesota Department of Transportation

Perspectives on Sustainability in an Interdependent World
Kevin Jones, Divisional Vice President, Supply Chain, Northern Plains Division, Walmart Stores Inc.
Cheryl Bynum, Director, SmartWay Program, U.S. Environmental Protection Agency
Wayne Johnson, Chair, Highway Transportation Committee, National Industrial Transportation League
Don Scott, Director of Sustainability, National Biodiesel Board

Can We Affect Sustainability? Cost Impacts to Business Models
Richard Cox, Branch Manager, Kuhene + Nagel
David Simpson, Principal, David P. Simpson Consultants LLC
Joyce Brenny, President, Brenny Transportation

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Trucking Industry Mobility and Technology Coalition

Public Sector Freight Initiatives Update

Presentation

Bill Gardner, Director, Office of Freight and Commercial Vehicle Operations, Minnesota Department of Transportation, and Member, Minnesota Freight Advisory Committee

Bill Gardner

Bill Gardner kicked off the symposium by apprising the audience of Mn/DOT's sustainability efforts.

For Mn/DOT, sustainability means balancing three areas of interest: the societal, the environmental, and the economic. The area in which all three components overlap is known as the triple bottom line.

"Certainly in terms of governmental transportation agencies, most of the work has been done in the environmental world," Gardner said. "We're being pulled and prodded and pushed into the other worlds by our stakeholders, and I say that in a complimentary fashion because I think that's a good thing."

Mn/DOT is working with the Department of Employment and Economic Development on economic development projects, beginning with highway projects and moving to other modes of transportation, Gardner said.

Mn/DOT is also a member of the Smart Transportation Initiative, which brings together 14 state departments of transportation to work with state and local policymakers to advance environmental sustainability and equitable economic development.

Gardner seeks examples of win-win sustainability scenarios that produce both public and private benefits. One example, Gardner said, is fuel efficiency and greenhouse gas emission standards for heavy-duty trucks, proposed in October by the U.S. Environmental Protection Agency and the U.S. Department of Transportation.

The engine and vehicle standards would begin in the 2014 model year. They would reduce greenhouse gas emissions by about 250 million metric tons and save 500 million barrels of oil over the lives of the vehicles produced within the program's first five years, he said.

A National Academy of Sciences study said long-haul tractor-trailers could reduce their fuel consumption by at least 35 percent by 2017 with the standards in place.

"So this is really a win-win program that has freight industry support and that could improve the industry's bottom line while meeting public policy objectives," Gardner said.

Perspectives on Sustainability in an Interdependent World

A Panel Discussion

Moderator: **Dan Murray,** Vice President, Research, American Transportation Research Institute

Panelists: **Kevin Jones**, Divisional Vice President, Supply Chain, Northern Plains Division, Walmart Stores Inc.
Cheryl Bynum, Director, SmartWay Program, U.S. Environmental Protection Agency
Wayne Johnson, Chair, Highway Transportation Committee, National Industrial Transportation League
Don Scott, Director of Sustainability, National Biodiesel Board

Members of the first panel offered their thoughts on the role and effects of sustainability within their industries. Dan Murray of the American Transportation Research Institute moderated the panel.

"Clearly, our stance is that you can be sustainable and save money."
—Kevin Jones, Walmart

Kevin Jones

Walmart's commitment to sustainability

Simple, common-sense fixes can add up to big environmental benefits, said Kevin Jones of Walmart Stores Inc. As an added bonus, companies that make environmental improvements to align themselves with sustainability goals often see their efforts pay off economically, he said.

He told attendees that Walmart collaborates, even with its competition, on sustainability efforts due to the issue's importance. In fact, he characterized the retailer's sustainability efforts as the biggest initiative executives there have undertaken in the past 10 years.

Efforts formally began in 2005 by then-CEO Lee Scott. Sustainability goals called for a 25 percent increase in fleet efficiency by 2008; the retailer met and surpassed that goal. By 2008 year's end, fleet efficiency had increased 38 percent compared to 2005 levels, Jones said. (Efficiency was measured in terms of cases shipped per gallon of fuel burned.)

By 2015 the retailer plans to double fleet efficiency from where it stood in 2005, Jones said. To meet that goal, logistics managers are looking to improve packaging, streamline routing, use alternative fuels, and improve mileage.

When improvement is made in one area, it touches many other areas, he added. For example, one of the more than 100,000 suppliers Walmart works with began packaging its car seats in plastic containers rather than boxes, which meant more packages could be placed in a truck and in turn reduced fuel and trucks used, Jones said.

Similarly, in 2007, Walmart placed 26 pallets on each tractor-trailer. In 2008, logistics managers began pinwheeling half the pallets—that is, placing them on the truck after giving them a one-quarter turn. The move allowed for 28 pallets on a truck. In 2009 the retailer started turning all the pallets a quarter turn and was able to load 30 pallets onto the trailer.

"Some of this is just common sense and you have to ask, why weren't we doing this from the start?" Jones said. "It's just so simple."

The retailer's logistics network is now working to improve fleet routing to reduce empty miles and also working with third-party vendors to deploy technology for fleet optimization, Jones added. For example, about two years ago the retailer added auxiliary power units to every vehicle to avoid idling. The move saved what Jones termed a tremendous amount of fuel.

Walmart is also developing a hybrid-assist truck as well as trucks that run off liquid natural gas rather than diesel fuel. "We even have several trucks that use reclaimed grease from our stores, [such as] from our chickens," Jones said.

The logistics network is also working to integrate its grocery and general merchandise freight networks, which formerly operated separately. The integration will allow the retailer to make better use of its trucks. "Those are the types of things that sustainability makes you aware of, that help you to save money in your company," Jones said.

"Clearly, our stance is that you can be sustainable and save money," he said. "We've recognized that because of our size, the impact can be great. So we've taken our responsibility seriously."

EPA's SmartWay transport partnership

Governmental guidance doesn't have to be onerous when it comes to sustainability, said Cheryl Bynum of the SmartWay Program.

The EPA program can help carriers voluntarily cut emissions. In the process, they save fuel and make themselves more appealing to


Cheryl Bynum


Wayne Johnson

shippers looking to reduce their own environmental footprint, she said.

A freight partnership, SmartWay launched in 2004 with the aim to reduce fuel consumption and emissions. Through voluntary partnerships such as SmartWay, governmental agencies can help shippers become more sustainable without imposing regulation upon them, she said.

Shippers and their carriers—whether trucking, rail, or multimodal—can join the program. Carriers first fill out a Freight Logistics Environmental and Energy Tracking Performance Model, which quantifies the environmental performance of their operations. By filling out the model and signing a partnership agreement, they become a listed SmartWay Partner and agree to set fuel efficiency goals to be attained within three years.

Joining the partnership can help a carrier's financial bottom line in a number of ways, Bynum said. For example, shippers seeking environmentally conscious carriers give shipping business to SmartWay partners.

"Shippers want to know their carbon footprint to control that part of their shipping portfolio, but does a shipper that has thousands of carriers really want to get reports from each carrier?" Bynum said. "We're able to be the integrator and say 'here's how these carriers do.'"

The SmartWay program also tests technologies and best practices that can help carriers reduce emissions and save fuel, Bynum added, such as tools to improve truck aerodynamics and cut idling time.

The SmartWay Clean Diesel Finance program offers loans to small trucking firms to help them purchase new trucks as well as idling and emissions-reduction technologies, Bynum said.

"These innovative loans help small trucking firms lower their fuel costs and their carbon footprint," Bynum said. "If you don't burn the fuel, you don't emit the pollutants."

The trucking industry is made up of predominantly small business owners—80 percent of fleets operate 20 or fewer trucks. "We wanted to reach out to those businesses," she said. "The federal government is saying 'We know you don't have the time, people, and resources to test these things. But we'll tell you what's snake oil and what works. We'll recognize you for your efforts, and that will help you get new customers,'" Bynum said.

> "[SmartWay] loans help small trucking firms lower their fuel costs and their carbon footprint."
>
> —Cheryl Bynum

A shipper and federal policy perspective

Wayne Johnson, chair of the National Industrial Transportation League's (NITL) Highway Transportation Committee and manager of carrier relations with Owens Corning, brought both a shipper and federal policy perspective to the panel.

The NITL is a 600-member association of companies within the transportation industry. Governmental officials turn to NITL to get members' perspective and advice on pertinent issues. And league members also bring shipping and transportation issues before Congress, Johnson said.

As Owens Corning manager for carrier relations, Johnson is well-placed to see the benefits and drawbacks that governmental regulation places on shippers and carriers, he said. "People want companies that are sustainable or they know regulation will shut you down," he said.

Owens Corning takes its sustainability efforts seriously, he added. And he gave an important piece of advice. "When you have sustainability projects at a company, you have to have a champion or else they won't work," he said.

Biodiesel and sustainability

Sustainability issues extend beyond environmental impacts to also encompass economic and social factors, reiterated Don Scott of the National Biodiesel Board.

"We could spend billions in our own communities on domestic fuels, and that creates jobs and economic activities in Minnesota and in the rest of the United States," Scott said. "As America thrives, the freight industry thrives."

Scott supports the use of biodiesel as a sustainable, domestic fuel that can replace petroleum in the future. "Petroleum is a vanishing resource, but even before we run out we'll see its cost make it prohibitive for us to use it as we use it today," Scott said.

In addition, the fuel's diesel exhaust has a detrimental effect on human health and it contributes to greenhouse gasses. About 7.5 billion tons of carbon from burning fossils are emitted

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—Don Scott

into the earth’s atmosphere annually—twice as much as the atmosphere can absorb, Scott said.

The cost to import petroleum is more than the U.S. economy can sustain, Scott continued. The country imports more than 65 percent of the petroleum it uses and spends more than $1 billion daily to buy fuels from other countries, he added.

Biodiesel is compatible with existing diesel engines and meets the ASTM D6751 fuel specification for biodiesel, he said. Legislation in 47 states mandates that biodiesel meet the specification. (Vermont, Alaska, and New Jersey don’t have such laws.) The biodiesel industry will soon unveil a potential specification for No. 1 grade biodiesel for use in cold weather.

“We understand quality is part of sustainability and we want to be here for the long haul for our customers,” Scott said.

Question-and-answer session

Following the presentation, the speakers fielded questions from the audience.

Moderator Dan Murray asked panelists whether sustainability efforts worked better when mandated by a governmental body or when undertaken by the enterprise voluntarily.

Jones responded that sustainability methods have cut Walmart’s expenses. “Our approach has been that there’s an expenditure of money on the front end, but you recoup that several times over,” he said.

Bynum said the two approaches—voluntarily instituting sustainability practices and instituting mandates—could complement each other. “Manufacturers and customers look for regulatory certainty to provide a common yardstick across the board so folks know this isn’t a wild west.”

Also, when policies are mandated, manufacturers can better plan for them. For example, truck makers can plan to bring their vehicles into compliance with diesel emission standards. Trucking companies may voluntarily choose to retrofit older vehicle models to cut emissions standards, complementing newer fleet vehicles, she said.

Johnson opted for voluntary choice. “In this economy, for the government to mandate anything is the silliest thing I’ve ever heard,” he said. “If you mandate something on freight in this economy, people will go broke.”

“Anything done in freight transportation has to be voluntary, and SmartWay is a good way to look at it,” Johnson added. “If you say to a hauler, ‘you have to be SmartWay-approved or you can’t haul freight for us,’ that gives them a choice.”

Scott pointed out that federal and state mandates have a role to play in furthering the biodiesel industry, such as in ensuring that existing fuel pipes and pumps can also move biodiesel fuel.

In response to a question about whether potentially deteriorating and congested roads can affect goods movement, Jones called for retailer and carrier partnerships with governmental bodies and others to work on such issues. “Because of Walmart’s size, we’ve got a social responsibility to get on the forefront of issues like road congestion,” he said.

Johnson ended the morning panel by calling for Congress to develop a national transportation policy that describes current infrastructure and transportation needs and lays out steps to meet those needs. Such a policy should be revisited every year, if need be, he said.

“Without this, we’ll continue to struggle with our infrastructure needs, and it’ll get pretty ugly when you have 30 to 40 percent more traffic in 2020,” Johnson concluded.

“If you mandate something on freight in this economy, people will go broke”

—Wayne Johnson

Don Scott

Can We Affect Sustainability? Cost Impacts to Business Models

A Panel Discussion

Moderator: **Carissa Schively-Slotterback**, Assistant Professor, Hubert H. Humphrey School of Public Affairs, University of Minnesota

Panelists: **Richard Cox,** Branch Manager, Kuhene + Nagel
David Simpson, Principal, David P. Simpson Consultants LLC
Joyce Brenny, President, Brenny Transportation

Richard Cox

The second panel focused on the cost impacts of sustainability to business models. Moderator Carissa Schively-Slotterback, an assistant professor in the Humphrey School of Public Affairs, told attendees she's seen sustainability issues move to the forefront of students' interest as they plan for future careers. Those issues now commonly affect policy and all other aspects of transportation, she said.

Sustainability in ocean freight

The container ship industry continues to bounce back after a two-year slowdown that changed how the ocean freight industry operated and inevitably affected sustainability, said Richard Cox, branch manager at Kuhene + Nagel. He books freight space for ship and air customers.

Today, container ships move 15 percent of all freight, Cox said, but the industry has seen upheaval in tandem with the U.S. economic slowdown. In 2006 and 2007 the industry had been moving toward ocean-going freighters the size of aircraft carriers, designed with major retailers in mind. Such ships cost $145 million, were 10 stories high, and held 11,000 20-foot equivalent units, which is around 4,000 more than an average container ship holds, Cox said.

These ships traveled at 31 knots and crossed the Pacific in seven days, down from the usual 10 to 12 days. "But that's all changed over the last few years," he said.

When the economy dropped out, so did the ocean-going freight business. Depending on estimates, the entire industry lost $15 billion to $22 billion in 2009, Cox said. Shipping owners began idling fleet in light of swiftly falling demand.

To win business, ocean cargo carriers must have ISO 4001 certification, a certification level that specifies environmental standards. Some ships began using a process called derating—operating the engine at less than maximum power—to emit less carbon dioxide. By slowing down, firms also reduced fuel costs and were able to bring vessels back into the market that had been idled since the recession, illustrating how sustainability efforts can help a company save money, Cox said.

Slower speeds, however, mean longer times spent completing shipping routes. The effects of slower-moving vessels ripple down the supply chain, affecting those ordering the products as well as their supply partners.

"Longer travel time will mean you'll have to figure in higher cost of inventory because it takes longer for goods to get where they're going. You'll have to hold them longer, and might have to order more," Cox said.

"If you're an exporter and you can't get on a vessel, your customer may want longer credit terms," Cox said. "Conversely, on the import side, if it's taking longer for goods to get in, your supplier may be asking for money faster," he added.

Other environmental steps recently undertaken within the ocean-going cargo industry include the introduction of electronically controlled engines and on-board computerized technology to cut emissions.

Hulls are now sometimes painted with specific paint to keep organisms from attaching to the ship and being introduced into a foreign environment. Shippers have become aware of ballast issues as well. "They used to just dump ballast water but now they filter it to minimize the floral and environmental impact in ports," he said.

Many ships now include auxiliary engines that run while the ship is in port, which cuts the amount of carbon dioxide released into the environment, Cox said. And on-board routing technology helps ships maneuver around rather than through storms at sea. "It takes a lot of energy to go through a storm," he explained.

Improved logistics technology, such as route-planning technology, means firms can better manage their fleet to reduce the number of runs made and allows logistics managers to better track containers while in-country, so containers can be delivered directly to ports, he said.

All in all, Cox concluded, a changed financial environment has led to increased sustainability measures in the ocean cargo industry. But the importers and exporters whose goods are moved on cargo ships won't benefit financially from these measures, Cox predicted. "Since the shipping industry found a new source of revenue, they're not likely to pass fuel savings on," he said. "Big customers like huge big boxers could force the issue, but for most of us they won't pass on fuel savings."

Freight movement and sustainability

As more Americans move from the suburbs into their city's downtown core, freight and logistics providers need to plan for new distribution hubs as ways to get consumer goods into and out of those areas, said David Simpson.

A number of newspaper articles and analyses of late—Simpson cited an article in the June 29, 2010, Minneapolis *StarTribune*—have talked about a growing trend, sometimes called New Urbanism, Simpson said.

"The lifestyle preferences of people who want to be on their iPod is that they don't want to spend one hour a day behind the wheel of an automobile," he said. "This has implications for retail strategy."

Big-box retailers such as Kmart and Target have sited stores in downtown areas. At the same time, downtown dwellers order many goods from the Internet, which need to be delivered to their homes. "The challenge with all of this is making the distribution and logistics chain still be very efficient," Simpson said.

New transportation corridors, however, can take decades to put in place. And, as Simpson said, "freight doesn't vote. Most consumers don't care how their stuff got to them." But by coupling transit and freight-rail initiatives, government backing may follow, Simpson said. Passenger and freight-rail movement must be considered together when setting policy.

He also called for government backing to help the rail industry penetrate short-line markets. "Rail freight can play a broader role in moving freight than it does today, but it needs to be accommodated by policy adjustments," Simpson said. "There are some things short-lines could do beyond being feeders into the big system."

A rail line might run to a distribution cen-

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Joyce Brenny

ter within a downtown center, where smaller trucks could pick up goods and shuttle them to retailers, for example.

State departments of transportation and railroad providers will need to be on the same page and collaborate for these types of plans to move forward, he said. Currently, not a lot of joint planning happens, largely because railroads are privately held, he said.

Public interest may be piqued by a complementary pattern of rail use, such as high-speed rail to move both passengers and freight, or the night transport of freight over passenger lines, Simpson said. In some European countries, freight runs late at night over passenger rail lines when few passenger cars are in use.

Simpson called for pilot projects that could test these multimodal-movement methods and help overcome resistance. Private and public sectors should work together on these projects, he recommended.

Small trucking companies and sustainability

Small trucking companies support sustainable practices but they often can't afford to implement them, said Joyce Brenny.

Her firm, headquartered in St. Joseph, Minnesota, operates 50 tractor-trailers throughout the United States and into Canada. "It's hard to absorb the cost impacts and speed at which sustainability is coming at us," she said.

She described some sustainability efforts mandated by federal, state, and local governments. For example, truckers are required to purchase biofuels made in Minnesota without the assurance the fuel can function in the state's cold climate. "Many tow truck and clogged fuel bills later, we can't use biofuels in the cold," she said. Likewise, low-rollingresistance tires "are a great deal for states that don't deal with snow and ice."

Brenny also said the process to become a certified SmartWay partner is quite involved, citing a 57-page technical document and a 48-page user guide. She worried that her company may not qualify for certification because of its older equipment. "But smaller firms tend to keep their equipment longer in order to compete," she said.

"Some may ask, why not just update equipment?" she added. "But the last few EPA engine mandates raised the cost of trucks by $20,000 per unit. It isn't easy finding the capital to purchase a $120,000 rig, let alone dozens of them."

Auxiliary power units intended to help meet idling requirements add weight to the trucks and increase maintenance issues by adding wear to the alternators. That wear means the trucks burn more fuel, Brenny said.

She cited more examples of required regulation, including stormwater runoff mandates designed to keep fuel and other pollutants from reaching waterways. "This is all hard for a trucker to keep a handle on," Brenny said.

"It's very time consuming to educate ourselves on what we need to do to be compliant," Brenny concluded. "Please remember we're in this together and that most of the small trucking companies are currently as green as we can afford to be."

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Question-and-answer session

The panelists responded to a question on how those in the transport industry could work together for multimodal solutions.

Brenny advocated more back-and-forth communication. "We need to work together to help us be strong in all areas of transportation," she said.

Simpson called for better developmental planning. "You need to think of how we plan our development—whether in industrial parks or residential areas or in downtown office areas," he said. "You need to think about how it will be located so we can flow freight efficiently but aren't building everything to a standard that will accommodate 53-foot semis. Those days are done."

Cox called for collaboration between different government branches and agencies when planning for freight and infrastructure needs. "Railroads are not likely to get into short-haul intermodal because those are two different business models in terms of management practices," he said. "It probably won't happen strictly by talking to rail providers."

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