



# G75

## 75 GREEN SUPPLY CHAIN PARTNERS

*Inbound Logistics'* methodology for selecting 75 Green Supply Chain Partners (G75) considers a company's involvement in three areas: participation in public-private partnerships; corporate sustainability initiatives; and collaborative customer-driven projects. Within this context, four benchmarks carry weight in our decision-making: measurable green results, sustainability innovation, continuous improvement, and industry recognition.

As part of our due diligence, *IL* editors solicited more than 200 transportation and logistics companies to complete a questionnaire specifying their

investments in sustainability—ranging from fuel-efficient equipment to corporate-sponsored recycling programs, and everything in between. We also conducted our own research, online and over the phone.

Our focus centers on asset-based companies that have demonstrated measurable progress over the past few years as they integrate sustainability into their respective enterprises. The list does not include companies that tout technology or intellectual capital as green enablers. It's not just a matter of being a facilitator and responding to customer demand; we value companies that are leading by example.



## AEP River Operations

AEP River Operations recently received the 2011 WorkBoat Environmental Initiative Award. The recognition, given to businesses and government operations serving the U.S. maritime industry, judges nominees on successful efforts to incorporate environmentally sustainable practices into daily maritime operations; innovation, leadership and/or commitment toward environmental stewardship; and compliance with local, state, and federal environmental regulations and requirements.

Eco-friendly truck | Cardinal



## Cardinal Logistics Management Corporation

Cardinal Logistics has invested in its fleet to help reduce fuel consumption and emissions, including installing auxiliary power units, setting automatic idle shutdowns, and increasing MPG efficiency by governing power unit speed limits. The company is also testing renewable fuels, investing in driver training, using technology to monitor vehicle performance, and creating more dynamic routing instructions that reduce miles and maximize backhaul opportunities.

## DB Schenker

DB Schenker's intermodal division helps shippers choose the optimal transportation mode through its online EcoTransIT World tool. The solution identifies a shipment's environmental impact in terms of direct energy consumption and emissions during transportation, and calculates the indirect fuel consumption and emissions related to production, transportation, and distribution of energy required for operating vehicles. DB Schenker Rail also uses wind turbines to power its freight trains.

## Aspen Logistics

Aspen Logistics won the Orion Environmental Stewardship Award for retrofitting facilities with high-efficiency fluorescent lighting. Additionally, the 3PL's tractors are equipped with emission control reduction technologies, and it is certified by the California Air Resources Board regulations. Aspen has also been recognized by Southern California Edison for power savings in Salt Lake City, Utah, and Victorville, Calif.

## C.H. Robinson Worldwide, Inc.

C.H. Robinson offers services that optimize business processes to efficiently use transportation and distribution network resources, ultimately driving out costs and minimizing carbon emissions. For example, the company's produce sourcing programs help reduce the distance from farm to table. Working directly with growers and retail customers helps allocate natural resources wisely and builds efficient farm-to-shelf distribution models.



Solar-powered warehouse | CEVA Logistics

## CEVA Logistics

In 2008, CEVA introduced a corporate-wide program to reduce the environmental footprint of its business activities. More recently, the company shifted its attention to managing the environmental impact of the full product lifecycle, including the supply chain. This includes measuring and reducing customers' carbon footprints and emissions in warehouses, and improving fuel efficiency.



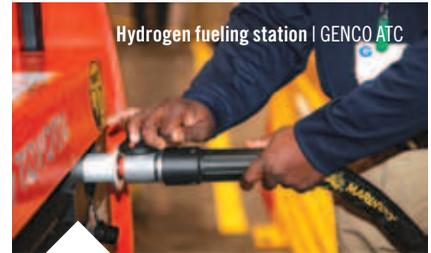
Alternative energy | DB Schenker

## DSC Logistics

One of the 3PL's 2012 green goals includes creating a DSC Sustainable Facility Certification to recognize sustainability achievements. Logistics centers will strive to implement specific items on a checklist – for example, high-efficiency lighting, low water use toilets, auto shut-off faucets, recycling programs, and motion-activated lights. The checklists provide instructions for the facilities, while also suggesting resources to help them achieve these goals. Upon attaining a certain percentage of listed items, facilities will be awarded Platinum, Gold, or Silver certifications.

## EA Logistics

“Delivered GrEAn” is EA Logistics’ mantra, and the company has incorporated this commitment into its business value proposition. It computes emissions and provides shippers with free reforestation offsets to neutralize the CO<sub>2</sub> emissions from their shipments; its facility and house trucks are 100-percent carbon neutral; it uses biodiesel in its truck fleet and encourages biodiesel use among vendors; it has a no-idling policy at its facility; and drivers adhere to speed restrictions to reduce fuel consumption.



Hydrogen fueling station | GENCO ATC

## GENCO ATC

GENCO ATC's focus on product lifecycle logistics allows it to reduce waste and energy consumption across the entire supply chain. Manufacturing, packaging, distribution, reverse logistics, repair, and other logistics functions often operate in isolation. Combining and optimizing these areas has a positive impact on the environment and the bottom line. GENCO ATC's holistic approach to supply chain business process improvement allows companies to integrate siloed logistics activities, then cut cycle times, reduce freight runs, and eliminate carbon emissions.

## Hub Group

Converting truckload shipments to rail moves places Hub Group on the greening edge of the sustainability movement. Intermodal slashes fuel consumption and carbon emissions by as much as 65 percent for long-haul shipments. Rail is three times more efficient than truck, and railroad cars can move one ton of freight close to 500 miles on one gallon of fuel. Transferring truckload freight to rail also goes a long way toward eliminating congestion and reducing wear and tear on U.S. road systems.

## Inmar

Inmar approaches sustainability broadly, eliminating waste – regardless of source – in product that goes to landfill, in redundant processes, and in inefficient transportation models that increase carbon footprint and costs. In 2011, Inmar's sustainability initiatives helped convert 3.4 tons of waste to energy, saving more than 3,880 barrels of oil and generating 2,185 megawatt hours of renewable energy – enough to power 190 homes for one year.



Urban delivery | Geodis Wilson

## Geodis Wilson

Geodis Wilson's Blue Attitude Program is an internal promotion campaign that showcases and promotes sustainable development initiatives implemented in partnership with customers. For example, Geodis Wilson France set up an initiative in 2009 to reduce energy use and the number of products consumed in certain processes, as well as to improve on-site waste recycling – with a goal of covering 50 percent of emissions with offsets.



## Kenco Logistic Services

Kenco Logistic Services recently upgraded lighting at two customer-managed facilities in Chattanooga, Tenn., to reduce electricity use by 70 percent. The energy-efficient, high-intensity fluorescent lights use sensors to adjust warehouse lighting, automatically dimming when sunlight pours through the warehouse skylights and increasing light intensity at night and on cloudy days. The lighting array saves about 670,000 kilowatt hours annually. The project is anticipated to reduce greenhouse gas emissions by 14,000 tons over the fixtures' 20-year lifecycle. This is the air-scrubbing equivalent of a 149-acre forest, or removing 137 cars from the road, according to the U.S. Environmental Protection Agency.

## NFI

As part of the NFI Fit Fleet, the company has equipped tractors and trailers to reduce their carbon footprint and increase environmental friendliness. It has also been testing the use of natural gas in its fleet. In addition, NFI's intermodal department, NFI RoadRail, provides a transportation solution that double-stacks containers, and its solar division is dedicated to harvesting renewable energy to reduce utility costs.



## Penske Logistics

Penske's commitment to sustainability focuses on responsible operations, improving fuel economy, and streamlining waste. As testament to this cause, Penske Truck Leasing, Penske Logistics, and Penske Truck Rental all participate in and support the U.S. Environmental Protection Agency's SmartWay Transport partnership as affiliate, carrier, and logistics partners. From a logistics standpoint, the 3PL helps shippers analyze and reduce their carbon footprints through better route optimization and trailer loading and unloading procedures.

## Performance Team

From transportation operations to site selection, Performance Team's green efforts run through every facet of its company. For example, the company has improved aerodynamics and road safety by installing EPA SmartWay-certified hybrid trailer skirts on its trucks, and it now operates more than 70 Kenworth Clean Diesel tractors in its fleet. It also has a mandatory "no idling" policy. In terms of network design, Performance Team relocated a transload facility in South Carolina to an on-port terminal, eliminating a 50-mile drayage to inland Charleston operations. One customer estimates that it will eliminate 90,000 miles annually because of this move.

## Lynden

Lynden has focused green efforts on streamlining the performance of its assets. Its new cab design – with roof fairing, integrated sleeper, and aerodynamic mirrors and bumper – reduces drag. Lynden's tank trucks are equipped with a jacketing system and belly pan to cover cross-members and enclose outriggers and bolsters. The company is also experimenting with side skirts, "weed burner" exhaust (in which the exhaust pipe points down rather than up), and partnering with Washington State University's College of Engineering to model and refine the aerodynamics of milk tank trucks in its wind tunnel.

## Ryder

In 2012, Ryder began offering customers the opportunity to take part in its Green Challenge, an innovative approach to optimizing supply chain processes. In addition to measuring the cost savings and efficiency gains of traditional supply chain improvements, the Green Challenge provides new avenues to make customers “greener.” With the program, Ryder demonstrates how an alternative greener supply chain solution can help them significantly lower carbon emissions versus a model traditionally optimized for the lowest cost. The Green Challenge design takes into consideration three areas: transportation, facilities and building use, and network design.



Natural-gas vehicle | Ryder



CNG-powered truck | Saddle Creek Logistics Services

## Saddle Creek Logistics Services

Saddle Creek Logistics Services has invested in alternative fuel vehicles for its for-hire fleet as part of the company's commitment to sustainability. The new trucks run on compressed natural gas (CNG), one of the cleanest-burning alternative fuel options available with near-zero emissions. Saddle Creek purchased 40 Freightliner CNG trucks in fall 2011 and plans to have 120 in its fleet by 2013. The first wave of tractors will reduce the fleet's carbon footprint by 4.2 million pounds of carbon per year – the equivalent of taking 364 cars off the road.

## TransGroup

The 3PL's TransNeutral offering is an opt-in program that analyzes shipment-specific carbon footprints and enables companies to offset the CO<sub>2</sub> emissions that result from their shipments. Specifically, it uses a weight-based calculation to determine the amount of climate-affecting greenhouse gases a shipment emits. It then offsets those emissions by contributing to emission reduction programs involving reforestation, wind power, and biofuel-related farm renewal projects.

## Transplace

Working with Sunny Delight Beverages Co., Transplace recently completed a successful implementation of a compressed natural gas fleet in southern California. The initiative has effectively lowered greenhouse gas emissions and reduced fuel costs for the beverage company. The five-year arrangement will transport Sunny Delight products to customers across the southern California market to cities such as Los Angeles, Mira Loma, Carson, and Riverside. Sunny Delight's network stands to save an estimated 400,000 gallons of diesel fuel in 2012 due to the conversion.



## UTi

UTi recently undertook a project to evaluate opportunities for overall environmental improvement in its multi-client contract logistics facilities. One key recommendation was to implement processes and machinery that recycle dunnage into packing material for pick-and-pack operations. The 3PL expects this effort to divert all scrap cardboard, and eliminate much of the plastic packing material currently used in those operations.

## Weber Logistics

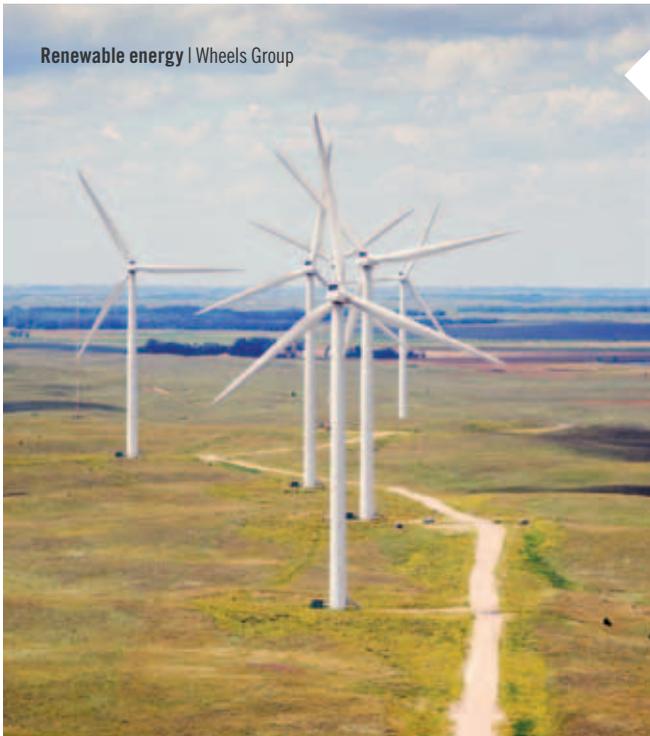
Over the past three years, Weber has reduced its fleet's carbon emissions by 37 percent – the equivalent of removing 2,047 cars from the road every year. In its warehouses, innovative lighting solutions have reduced electrical usage up to 30 percent, creating cost savings for its clients while reducing pollution. Weber has also made efforts to bring vendors in line with its own sustainability efforts.



Low-emissions vehicle | Werner Enterprises

## Werner Enterprises

Werner Enterprises is investing in technologies, proactive strategies, and policies that increase fuel efficiency and decrease carbon emissions. The company is testing and implementing technologies that include wide-base tires/low rolling resistant tires, tire inflation systems, idle reduction tools, trailer tails, and its proprietary, SmartWay-certified advanced trailer skirt, ArrowShield. From 2007 to 2011, the company reduced its carbon footprint by 209,171 tons of CO<sub>2</sub> and the amount of fuel burned by nearly 19 million gallons. It has also reduced idling time 33 percent.



Renewable energy | Wheels Group

## Wheels Group

Wheels Group's green policy is to consistently seek measures that will reduce activities that negatively impact the environment, and ultimately minimize its carbon output. The company has formed a Green Team with executive sponsorship to oversee a variety of projects that support its aim toward carbon neutrality. Wheel Group's strategy focuses specifically on waste reduction, recycling, re-use of materials, reducing energy consumption, migrating to renewable energy purchases, and working as an organization to achieve carbon neutrality.

## Yusen Logistics

Yusen Logistics has made efforts to create its own standards with regards to environmental protection. Globally, it is acquiring the ISO 14001:2004 Environmental Management Standard across facilities to help improve environmental performance, and set targets and objectives. For example, Yusen has developed a closed-loop logistics process intended to reduce the supply chain's overall effect on the environment. The process emphasizes re-using and recycling materials, and includes end-of-life disposal options for products.



Fuel conservation | American Airlines

## American Airlines

In 2011, American Airlines ordered 460 new planes from Boeing and Airbus. The airline expects the new aircraft to dramatically reduce costs because the planes are more fuel-efficient and require less maintenance than a more mature fleet. American's Fuel Smart program has saved more than 500 million gallons of fuel in five years, and reduced CO<sub>2</sub> emissions by 2.6 billion pounds annually through initiatives such as reducing auxiliary power use, single-engine taxiing, wing tip extensions, and high-speed tow tractors.

## FedEx

In a new program called FedEx carbon-neutral envelope shipping, the expedited carrier calculates the carbon emissions generated by transporting an envelope to its destination, then pays a provider to offset those emissions for each envelope shipped. The program is one element of FedEx's EarthSmart environmental initiative focused on conservation, alternative energy, and transportation industry leadership. By rebalancing its fleet and optimizing routes, for example, FedEx Express has improved total fleet miles per gallon within the United States by 14.1 percent since



EarthSmart envelope | FedEx

2005, saving more than 53 million gallons of fuel and approximately 521,000 tons of carbon dioxide emissions, with a goal of 20-percent improvement by 2020.



Electric delivery van | DHL

## DHL

With a goal of reducing its carbon footprint 30 percent by 2020, DHL is testing and introducing alternative drive technologies and renewable energies; renewing its air and ground fleet; promoting a partial shift from air to ocean and road; and extending to all shippers its optional carbon-neutral GoGreen service, in which it calculates all transport-related carbon dioxide emissions for shipments, then offsets them through external climate protection projects. In 2011, the company rolled out 30 battery-powered electric vans and 50 hybrid trucks, which will reduce fossil fuel use and cut CO<sub>2</sub> emissions by more than 50 percent each year compared to conventional vehicles.



Fuel-efficient plane | Lufthansa

## Lufthansa

Lufthansa Cargo optimizes operational measures on the ground and in the air to cut fuel consumption and carbon emissions. The airline purchased five Boeing 777F aircraft, which create 20 percent less emissions than the MD-11, formerly the standard in fuel-efficient planes. Lufthansa also improved aircraft capacity utilization to meet rising demand with lower fuel consumption, and optimized routes to avoid detours.

For example, optimizing its Far East route network, the airline reduced CO<sub>2</sub> emissions by 70,500 tons annually. With its sub-company Jettainer, Lufthansa developed a lightweight plastic container that is 26 pounds lighter than the 173-pound standard aluminum containers. Replacing the aluminum containers with the plastic ones could save an estimated 110,200 tons of CO<sub>2</sub> in the next 10 years.



Hybrid vehicle | Purolator

## Purolator

Purolator's environmentally friendly initiatives include a strict no-idling rule for its drivers, a route optimization program that reduces overall distances traveled by vehicles, and environmentally responsible packaging. Since introducing hybrid electric delivery vehicles in Canada in 2005, Purolator has reduced greenhouse gas emissions by more than 2,300 tons, and cut fuel consumption by more than 170,000 gallons annually. Its Purolator express envelopes are made from 50-percent recycled fibers, and Purolator boxes are made from 95-percent recycled fibers. The expedited carrier also eliminated carbon paper inserts from domestic manual bills of lading, which reduced 24 tons of greenhouse gas emissions annually.

High-performance aircraft | Southwest Airlines



## Southwest Airlines

Southwest Airlines developed a \$175-million, six-year initiative to retrofit its fleet with advanced avionics to support Required Navigational Performance (RNP), the cornerstone of the Federal Aviation Administration's Next Generation Air Traffic Control System. RNP procedures are designed to conserve fuel, improve safety, and reduce carbon emissions, while simultaneously taking advantage of the high-performance characteristics that exist in an aircraft fleet. The airline also created the Southwest Airlines Green Plane, a test environment in which it evaluates the latest products that contain a high percentage of recycled content, minimize waste, or help cut fuel consumption.



Natural gas-powered vehicle | UPS

## UPS

UPS pursues continuous innovation in a number of technological fields that affect its environmental sustainability. It equipped delivery trucks with a telematics system that collects information about the vehicles' mechanical performance, driver performance, and customer delivery data, then used that information to optimize its fleet. For example, package operations drivers in telematics-equipped vehicles eliminated more than 65,000 hours of idling time, which translates into fuel savings of more than 260,000 gallons. UPS also maintains a fleet of more than 1,100 natural gas-powered vehicles.

## AL Pallet

AL Pallet's nine-pound, 100-percent recyclable aluminum pallets feature a lightweight design that differentiates it from wood and plastic pallets. Shippers can load more cargo on a pallet without exceeding weight limits, allowing them to better use assets and capacity while reducing fuel consumption and carbon emissions. The company also offers shippers an incentive-based recycling program designed to keep pallets out of the landfill.

## CHEP

CHEP's pallet pooling model encourages repairing and reusing pallets, and recycling broken or damaged components rather than sending them to the landfill. The company collaborates with shippers to assist them in supply chain improvement initiatives such as packaging reduction, design, and testing; unit and trailer load configuration; platform and product damage reduction; and transportation optimization. In addition, CHEP sources timber from tree farms, which are a responsible and sustainable source of timber.



Pallet pooling | CHEP

## Hyster

Hyster's electric lift trucks feature a system that recaptures energy when lowering loads and during braking. This energy is then reused, lowering the truck's overall energy consumption. In addition to developing more fuel-efficient diesel-powered trucks, Hyster is collaborating on next-generation alternative energy technology to enable a broader group of customers to more easily transition from internal combustion engine trucks to zero-emission electric trucks. All Hyster sites have focused programs for extensive recycling of wood, cardboard, plastic, office paper, metals, electronics, lift truck batteries, tires, and oil.

## iGPS

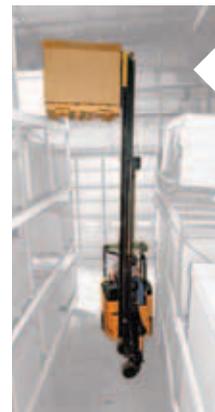
Completely recyclable iGPS all-plastic pallets weigh about 50 percent less than traditional wood pallets, which promotes better load optimization, more efficient fuel consumption, and reduced greenhouse gas emissions. If damaged, the pallets can be remolded into new ones, saving them from the landfill. iGPS offers a greenhouse gas calculator to help shippers determine the greenhouse gas emissions they could save by switching from multi-use wood pallets to all-plastic pallets.



Recyclable plastic pallet | iGPS

## Landoll

Powered by LP gas, a lower-emissions fuel alternative, Landoll's Bendi i4's internal combustion engine (ICE) is rated at 67 horsepower at 2400 rpm, and meets or exceeds emission standards for its vehicle class.



Electric lift truck | Landoll

Landoll also offers the eco-friendly, battery-powered Bendi Electric narrow-aisle lift trucks, available with 3,000- to 4,500-pound lift capacities, and three-stage tilting masts with lift heights up to 36 feet.



Wood pallet | PECO Pallet

## PECO Pallet

PECO's wood block pallets are built from responsibly forested U.S. timber, and are constantly reused, repaired, and recycled. In addition to eliminating the waste of single-use pallets, PECO's pallets' structural rigidity and top-deck coverage eliminate the need for slip sheets or tie sheets to maintain product integrity, and allow manufacturers to use thinner-gauge cardboard packaging. The company's North American network of 77 pallet depots, 12 manufacturing locations, and 358 recovery sites in strategic locations provides thorough coverage, reducing transportation costs and fuel consumption.

## Raymond Corporation

Powered by hydrogen fuel cells, Raymond's Eco-Performance lift trucks save energy by providing longer run-times between charges, which results in fewer battery changes, and reduced kilowatt use and CO<sub>2</sub> emissions. The lift trucks create power through regenerative braking, which saves power and results in less brake wear. Raymond's Swing-Reach truck uses up to 40 percent less energy than comparable lift trucks, while its regenerative lowering system returns 11 percent of energy used directly back to the battery.



Energy-efficient lift truck | Raymond Corp.

## Toyota Industrial Equipment Manufacturing (TIEM)

Toyota is committed to constantly developing new and better technologies that raise the bar in terms of safety, reliability and performance, along with providing a line of cleaner and recyclable vehicles. Today, Toyota remains the first and only manufacturer to offer UL compliant Compressed Natural Gas (CNG) powered lift trucks. The majority of lift trucks sold in North America are manufactured at Toyota Industrial Equipment Mfg., Inc. (TIEM), a zero-landfill facility in Columbus, Ind. Looking at alternative technologies, Toyota launched the world's first internal combustion hybrid lift truck in Japan in 2009.



Electric fork lift | Yale

## Yale

Yale has supported the adoption of greener technologies through engineering collaboration, analysis, and extensive internal and field validation testing. The company is investigating advanced, more efficient battery chemistries and technologies to reduce energy consumption, increase productivity, and cut toxic material content. Its zero-emission electric-powered lift trucks feature a system that recaptures energy during braking and loading; the energy is reused, reducing the truck's overall energy consumption. Also, an electronically controlled transmission significantly reduces tire and brake wear for internal combustion engine lift trucks.

## APL

APL received the U.S. Coast Guard's Osprey award, its highest honor for excellence in marine environmental protection. The carrier's newest and largest vessel, the 10,700-TEU *APL Southampton*, is also its most environmentally friendly and fuel-efficient, fitted with a ballast water treatment system and an electronically controlled main engine. To curb CO<sub>2</sub> emissions over the next three years, APL plans to deploy 30 more new energy-efficient vessels and upgrade equipment used for intermodal shipments.



Intermodal shipment | APL



Clean air port operations | Evergreen Line

## Evergreen Line

Evergreen won the Ports of Los Angeles and Long Beach 2011 Clean Air Action Plan Air Quality Award, an honor given for taking extraordinary measures to cut air emissions, modernize facilities, and implement innovative operations to reduce air pollution. The ocean carrier has also invested heavily in its Greenships vessels, designed to minimize the risk of oil pollution or fire resulting from grounding or collision. To pursue greater sustainability, Evergreen Line implemented Hong Kong's Fair Winds Charter, a voluntary clean fuels initiative for ocean-going vessels, and the Port of New York/New Jersey's Ocean-Going Vessel Low-Sulfur Fuel Program.



Kaohsiung Terminal | OOCL

## Maersk Line

Since 2007, Maersk Line has reduced its vessel CO<sub>2</sub> emissions by 15.6 percent per container shipped, with a goal of 25-percent reduction by 2020. The carrier achieved these results by purchasing new energy-efficient vessels, improving energy efficiency on existing vessels, and implementing operational techniques such as steady steaming. Maersk Line also works with shippers to optimize routing, match import and export loads, and seek best mode and route combinations. Other sustainability initiatives include increased use of clean fuels in ports to reduce air emissions, a vessel recycling policy, and a global waste minimization and safe discharge program.

## MOL

The ocean carrier's environmental strategy includes the Senpaku ISHIN project, a concept for next-generation vessels that will employ feasible technologies to reduce CO<sub>2</sub> emissions and other environmental loads. In 2011, MOL designed its hybrid car carrier, the *Emerald Ace*, to generate zero carbon emissions while berthed. The vessel is equipped with a hybrid electric power supply system that combines a 160-kilowatt solar generation system with lithium-ion batteries that can store up to 2.2 megawatts of electricity. The batteries store electricity generated by the solar system while the vessel is underway, allowing the diesel-powered generator to be completely shut down when the ship is in berth.

## NYK Line

NYK Line is working to reduce greenhouse gas emissions by monitoring the operational efficiency of ships, and calculating environmental management indicators as mandated in guidelines issued by the International Marine Organization. The company has set a goal to reduce CO<sub>2</sub> emissions by at least 10 percent in 2013, compared to 2006. NYK Line has also organized a task force to pursue air pollution prevention, and has equipped 38 vessels with electronically controlled engines, which improve fuel consumption and reduce nitrogen oxide emissions.

## OOCL

Reducing greenhouse gas emissions is a key part of OOCL's environmental program. In 1992, the carrier chose to change the design of its refrigerated container machinery to eliminate chlorofluorocarbons (CFC) production. Today, OOCL only uses CFC-free refrigerants for all its reefer containers. It also converted its Kaohsiung Terminal container yard in Taiwan to a green enterprise, replacing nine straddle carriers with six rail-mounted gantry cranes (RMGs). Run electrically and on a fixed-rail system, RMGs are emission-free, quiet, and provide a much safer working environment at the port. There are now a total of 14 RMGs in the terminal.



## North Carolina Ports

The port authority's Project Energy initiative addresses environmental issues such as equipment electrification, fuel conservation, emission reduction, alternative and renewable energies, recycling, and hybrid technologies. It also acts to protect and enhance the surrounding community and environment. For example, at the Port of Morehead City, oyster shells collected from individuals and businesses across the state are loaded on barges and returned to estuarine waters to help turn the tide on declining oyster stocks and provide habitat for other sea life.



AMP equipment | Port of Los Angeles

## Port of Long Beach and Port of Los Angeles

The EPA honored the ports with an environmental achievement award for their Technology Advancement Program (TAP), a joint initiative launched to accelerate the commercialization of port-related emission reduction technologies through testing and demonstration projects. The program has helped develop the world's first hybrid diesel-electric tugboat, and a unique pollution control device that attaches

to a containership's boiler and auxiliary engine stacks to reduce emissions while at berth. The Port of Los Angeles further promotes air quality through its Alternative Maritime Power (AMP) program, which allows ships to plug in shore-side electrical power while berthed, rather than run on diesel power.



## Port of Portland

At the port's marine Terminal 6 (T-6), where cargo-carrying trucks waiting to be processed can line up 20-deep, an optical card reader reduces engine idling by processing up to three trucks per minute. This speedier entry into T-6 not only reduces greenhouse gas emissions, but also reduces air emissions,

Hybrid tugboat | Port of Portland

including particulate matter and hazardous air pollutants. The Port of Portland fuels all T-6 container-handling and dredge support equipment with ultralow sulfur diesel, and uses tugboats that can plug in and shut down their engines when docked to reduce emissions and fuel consumption.

## Port of Seattle

The port's clean fuel incentive program for frequent-calling ships reduced sulfur dioxide emissions by more than 262 metric tons in 2011. Seventy-three percent of the 791 frequent vessel calls used cleaner fuels or shore power while at berth. The Port of Seattle also works with marine terminal operators to reduce cargo handling equipment emissions, and runs green purchasing and hazardous materials management programs. Its Clean Trucks Program requires drayage trucks to have 1994 or newer engines – estimated to be 2.5 to six times cleaner than older trucks.

## Port of Tacoma

As a partner in the Northwest Ports Clean Air Strategy, the Port of Tacoma strives to reduce seaport-related air emissions in the region. The port also works to clean up property contaminated by decades of industrial practices, and return it to productive use under more protective measures. In addition, it undertakes water-quality projects focused on preventing pollution and managing stormwater. For example, the port, in cooperation with Totem Ocean Trailer Express (TOTE), planted a rain garden at TOTE's Tacoma terminal to treat industrial stormwater runoff.



Stormwater management project | Port of Tacoma



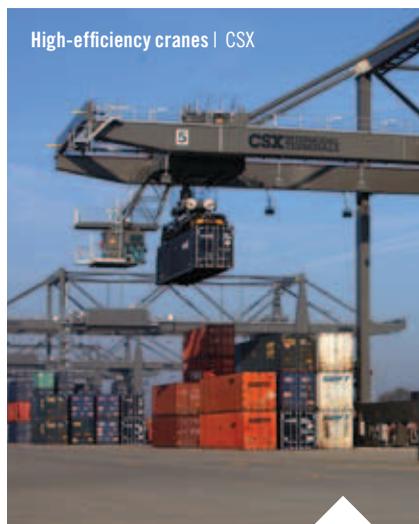
Low-emissions truck | Port of Virginia

## Port of Virginia

In 1999, the Port of Virginia voluntarily implemented an emissions reduction program through a series of revisions to its cargo handling equipment purchasing policies. The port specifies to its suppliers that all new cargo handling equipment contain the lowest emission engine available on the market. From 1999 to 2005, air emissions from cargo handling activities at the Port of Virginia decreased by 30 percent, despite a 55-percent cargo volume increase. For 2005-2015, emissions are expected to decline by an additional 38 percent, with a 49-percent projected cargo volume increase.

## BNSF

In 2011, BNSF customers reduced carbon dioxide emissions by more than 33,069,000 tons of CO<sub>2</sub>, which is equivalent to reducing the annual fuel consumption and resulting greenhouse gas emissions of more than six million passenger vehicles. For the fourth year in a row, BNSF provided its intermodal, automotive, industrial products, and agricultural products customers with customized letters analyzing their total rail carbon footprint and savings compared to moving those shipments via the highway.



High-efficiency cranes | CSX

## CSX

In 2011, CSX's new Northwest Ohio intermodal terminal opened, featuring high-efficiency wide-span cranes to support intermodal transportation. After achieving an eight-percent reduction in greenhouse gas emissions intensity nearly a year ahead of schedule, CSX continued that commitment by setting a new goal to further reduce emissions intensity by six to eight percent by 2020. Technology such as GenSet locomotives and trip optimization tracking will help meet that target. In addition to innovation in daily operations, CSX helps improve the global supply chain by providing shippers the opportunity to track freight emissions with an online carbon calculator.

## CN

CN's eco-friendly equipment investments include 500 EcoTherm super-insulated containers that increase shipper efficiency and help reduce energy consumption for temperature-sensitive intermodal shipments, such as food, beverages, paint, and pharmaceuticals. EcoTherm retains the proper temperature for sensitive goods throughout a rail trip for up to 10 days with no need for an engine to burn fuel en route. CN is also making efforts to cut emissions and increase energy efficiency through fleet renewal and technological applications.



Upgraded fleet equipment | CN

## Norfolk Southern

Maintaining a fuel-efficient fleet has long been a cornerstone of Norfolk Southern's sustainability efforts. In 2011, the railroad improved its locomotive fleet's fuel efficiency by 2.2 percent over 2009, resulting in diesel fuel savings equal to 10.2 million gallons, and reduced emissions of 115,650 tons of CO<sub>2</sub> equivalents. Its Locomotive Engineer Assist Display Event Recorder (LEADER) — an onboard, GPS-based computer system — prompts locomotive engineers with real-time information on optimum throttle, speed, and brake settings to achieve maximum fuel efficiency.



LEADER | Norfolk Southern



Fuel-efficient trains | Union Pacific

## Union Pacific Railroad

Union Pacific's recent investments include 100 new fuel-efficient locomotives in 2011, with plans to purchase an additional 200 in 2012, retiring older, less fuel-efficient locomotives. This approach has helped reduce its fuel consumption rate by 19 percent since 2000, equaling greenhouse gas emissions savings of more than 13,227,700 tons. In 2011, the railroad recycled more than four million gallons of fuel and oil; 3,000 tons of paper, cardboard, plastics, and other solid waste; and 250,000 tons of metal.



## A. Duie Pyle

Powering its Parkesburg, Pa., warehousing and distribution facility entirely by solar energy is just the start of A. Duie Pyle's sustainability effort. The carrier also implemented recycling and waste reduction of motor oil and tires; fuel-efficient equipment and engine idling controls; energy-efficient lighting; and company-wide programs such as sustainable cleaning product usage and waste-cutting printing and copying practices.

## ABF

Since 1976, ABF has voluntarily limited the maximum speed of its trucks, which reduces fuel consumption and emissions, partially offsets fuel economy degradation of the newer engines, and promotes safe driving. With a maximum speed of 63 mph, each ABF truck annually emits 33.5 fewer tons of CO<sub>2</sub> than identical trucks operating at 68 mph. ABF also maintains a long-standing no-idling policy. The carrier further reduces fuel consumption and enhances operational efficiency with practices that include a strict equipment maintenance schedule and an aggressive equipment replacement program – the average age of ABF road tractors is two years. This new equipment produces dramatically fewer particulate matter emissions than older equipment.

Speed-restricted truck | ABF



Solar power | A. Duie Pyle

## Averitt

Enlisting the help of its associates to promote environmental sustainability, Averitt's internal incentive programs reward workers for conservation efforts such as improving the company's miles-per-gallon rating, reducing energy usage, and raising environmental responsibility awareness. The carrier also stocks only ultra-low-sulfur diesel at its in-house fueling stations, and uses low-viscosity lubricants and engine oils, which lower maintenance service interval frequency and produce fewer waste products. In addition, it recycles all freon from tractor air-conditioning units; used oil and oil filters; scrap metal created from in-house maintenance and body work on tractors and trailers; and paper and cardboard used at its facilities and corporate headquarters.

## Celadon

To save fuel and reduce emissions, Celadon has made equipment enhancements such as installing auxiliary air heaters on trucks to eliminate the engine's need to idle in cold weather; adding ambient air temperature sensors on all trucks to override the engine's ability to run between the ambient of 70 to 20 degrees F; and equipping trucks and trailers with the most fuel-efficient dual tires on the market. The company also reduced the weight of 2,149 trucks by 300 pounds each by converting them to aluminum wheels, reduced maximum road speed for the entire fleet, and cut the fleet's idle time by 19 percent.

Idle-monitoring program | Con-way Freight



## Con-way Freight

Evaluating fuel consumption and equipment usage led the carrier to reduce truck speeds from 65 to 62 mph, install low-profile tires to improve rolling resistance and reduce weight, tune engines for optimal fuel economy, reduce trailer weight, and add idle-monitoring programs. Con-way Freight also developed a Web-based linehaul simulation tool to analyze and optimize its freight transportation network. Using this data, the carrier reduced transit times, cutting overall daily operating miles by 124,000 and conserving 2.6 million gallons of diesel fuel.

## C.R. England

To create a greener fleet, C.R. England tests new products to find sustainable options such as tractors powered by liquid natural gas, a fuel that emits up to 30 percent less greenhouse gas than gasoline or diesel vehicles; fuel-efficient, ultra-lightweight day cabs designed for short-haul applications; aerodynamic trailer side skirts that contribute up to four-percent fuel savings; aluminum wheels to reduce vehicle weight; and tires with lower rolling resistance.

LNG-powered tractor | C.R. England



## EPES Transport

In 2011, EPES Transport made a capital investment of almost \$39 million in high-efficiency equipment, including tractors and trailers. The company reduced idle time by 33 percent and improved miles per gallon by two percent. EPES Transport is committed to reducing transportation costs for shippers and pursuing its environmentally responsible initiatives.



Intermodal shipment | J.B. Hunt

## J.B. Hunt

In pursuit of its goal to reduce both the cost of transportation and its impact on the environment, J.B. Hunt has pursued sustainability innovations such as reducing tractor engine idling through driver incentive programs; installing on-board equipment such as direct-fired heaters and auxiliary power units; burning biodiesel fuels when available; governing top speeds on company-owned equipment to maximize fuel efficiency and safety performance; and converting over-the-road shipments to intermodal shipments, which saves an average of 200 gallons of fuel and two tons of carbon gas emissions per shipment.



## Knight Transportation

As part of its environmental awareness campaign, Knight Transportation outfitted its entire 9,000-trailer fleet with SmartWay-certified aerodynamic trailer blades, which reduce fuel consumption by more than six percent. The carrier also implemented numerous environmentally friendly initiatives at its facilities, including installing a 200,000-watt solar panel system at its Phoenix headquarters. Overall, Knight Transportation has eliminated 900 million pounds of CO<sub>2</sub>, four million pounds of nitrous oxide, and 100,000 pounds of particulate matter emissions annually.

## New England Motor Freight (NEMF)

Rooftop solar installations at NEMF's terminals in Pennsauken and South Plainfield, N.J., provide 98.5 percent of Pennsauken's current annual energy consumption and 86 percent of South Plainfield's. Combined, the systems will eliminate 521 metric tons of CO<sub>2</sub> annually – the equivalent of CO<sub>2</sub> emissions from 58,414 gallons of gasoline consumed, or from the electricity used by 65 homes in one year. A third solar installation at the company's Elizabeth, N.J., headquarters is in the planning stages.



Solar installation | New England Motor Freight



Trailer skirting | Old Dominion Freight Line

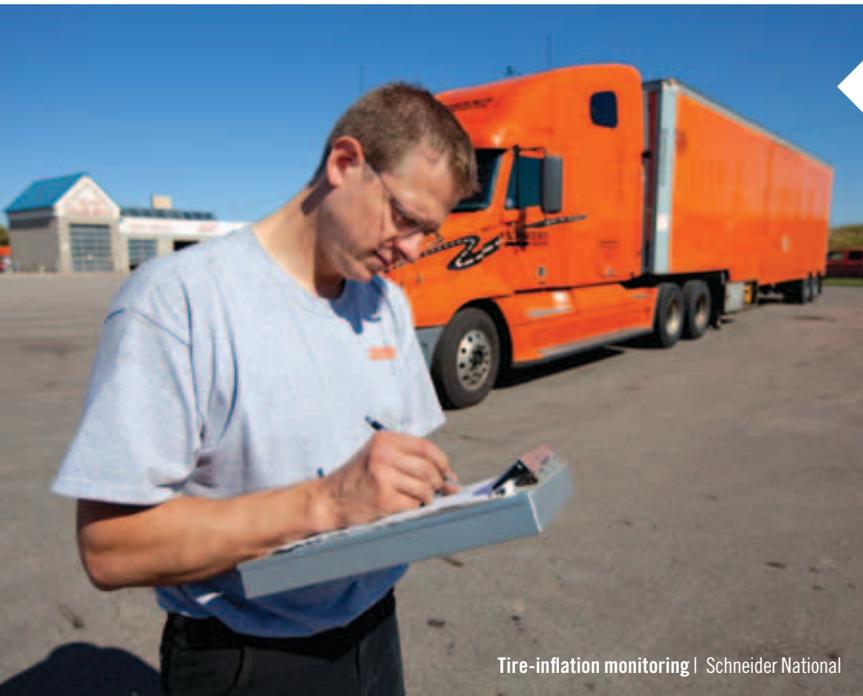
## Old Dominion Freight Line

In addition to adding eco-friendly features such as trailer skirting to its fleet, Old Dominion Freight Line installed rooftop solar panels on its Thomasville, N.C., warehouse. The 1.8-megawatt system completely covers the company's 160,000-square-foot roof and can produce more than 2.2-million kilowatt hours of electricity annually.

## RWI Transportation

RWI Transportation has established initiatives to protect the environment while maintaining the integrity of its primarily temperature-controlled, perishable shipments. To reduce fuel usage, door-open switches have been installed on all RWI trailers to shut off the reefer unit; automatic tire inflation systems are being retrofitted; and all new trailers have aerodynamic side skirts. In addition, RWI purchased intermodal trailers for transporting lettuce, a time-sensitive, difficult-to-handle load that is not typically transported by rail. These intermodal trailers have taken trucks off the road, reducing emissions and protecting the environment.

The company also opened its first Leadership in Energy and Environmental Design-certified service center in Canton, Ohio. The building will create an estimated 19.7-percent annual energy savings, and reduce water use by 34 percent, saving more than 31,000 gallons of water annually.



Tire-inflation monitoring | Schneider National

## Schneider National

Since 1998, the carrier's investment in sustainable, low-emission engines has reduced particulate and nitrogen oxide emissions by more than 80 percent. Its green initiatives include reducing fleet speed to 60 mph; powering trucks with renewable fuels, including more than one million gallons of blended biodiesel annually; equipping trucks with energy-efficient and aerodynamic features such as low-rolling-resistance tires, trailer skirting, wheel covers, and tire-inflation monitoring systems; and employing an on-site team of engineers to test and validate new energy-efficient technologies.

## Swift Transportation

Swift Transportation's specialized Clean Fleet of more than 1,000 EPA-certified 2007 or newer trucks is dedicated to adopting the latest green technologies. The company has won multiple awards for its sustainability leadership, including the Environmental Excellence Award from the EPA's SmartWay Transport Partnership.

## U.S. Xpress Enterprises, Inc.

Since launching operations in 1986, U.S. Xpress has held the efficient use and preservation of resources as a core business value. Over the past three years, U.S. Xpress has made a multi-million-dollar investment to maintain a fuel-efficient fleet, purchasing 4,500 new units. By the end of 2012, the company will have replaced all pre-2010 models with trucks meeting 2010 EPA engine specifications. Other green fleet features and programs include fuel-efficient tires, aerodynamic mud flaps, an engine-controller-based fuel incentive program, stringent engine idle shutdown parameters, and a GPS dual-mode satellite communications system to improve routing and conserve fuel.



Fuel-efficient vehicle | U.S. Express Enterprises



Speed-restricted truck | YRC Freight

## YRC Freight

YRC Freight addresses greenhouse gas reduction strategies by limiting truck speeds to 63 mph; using hotel rooms for driver stays instead of idling trucks overnight; extensively using intermodal service with railroad providers; setting limits on daily idling with over-the-road and city operations; using environmentally efficient longer combination vehicles where allowed; and maintaining an aggressive tire-pressure inflation and monitoring program. Looking ahead, the carrier is testing two diesel electric hybrids at a city pickup and delivery center in a large metropolitan area.