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# CONNECTIONS

2014 SUSTAINABILITY REPORT



## SUSTAINABILITY IN ACTION:

# LOCOMOTIVE ENGINE HEATER PROJECT SAVES FUEL AND REDUCES EMISSIONS



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MARK DUVE, Norfolk Southern's mechanical engineer of locomotive design, spends many hours developing technologies to improve locomotive performance. His latest project is helping the railroad conserve fuel and reduce environmental impacts.

Duve led a project to develop an electric plug-in locomotive-engine heating system that will reduce fuel use and emissions in rail yards and local operations. Because locomotive engines do not use antifreeze, they often must remain idling in cold weather to prevent engine-cooling water and engine components from freezing. With the heater, which is plugged into an external power source, a locomotive can be turned off for extended periods, resulting in environmental benefits and cost savings.

"Idling locomotives consume between three and four gallons of diesel fuel per hour," Dave said, "and colder weather causes the fuel consumption rate to increase."

Over the past several years, Norfolk Southern has installed automatic engine start-stop systems on locomotives to reduce idling. They shut down or restart an engine based on ambient air and

engine temperatures. During extremely cold winters in the company's Northern Region, however, the AESS' start function typically keeps the engines running. By contrast, the electric heating system Duve's team developed will keep the engine warm when plugged in, making it more effective than the AESS in reducing emissions from engine idling.

Largely through Duve's efforts, Norfolk Southern received three state and municipal grants totaling more than \$2 million to install 45 locomotive heaters and 36 plug-in stations in rail yards in Chicago, Kansas City, Mo., and northeastern Ohio. The plug-in stations include a 480-volt, three-phase power cord, poles, transformers, and a power distribution panel. Train crews connect the 20-foot to 30-foot power cord from the plug-in station to the locomotive heater using a fuel crane that Duve and his team modified to lift and hold the cord. "That makes it easier and more ergonomic for people to pick up," he said.

Norfolk Southern is the first Class I railroad to adopt a systemwide initiative involving locomotive engine heaters. The three initial projects will save an estimated 247,000 gallons of fuel annually and reduce emissions of nitrogen oxide by more than 80 tons and particulate matter by 2.87 tons. The heaters are being installed first on yard locomotives, where they have the most impact on local air quality. The plan is to continue installing them on yard and local locomotives and then, eventually, on line-of-road locomotives to extend the benefits.

Already, Duve is reviewing grant opportunities to expand the use of the locomotive heaters, including yards in Baltimore, Md., and Allentown and Pittsburgh, Pa.

Duve worked 16 years at locomotive manufacturer EMD on locomotive performance and emission-reduction projects before joining Norfolk Southern in 2010. He regularly visits terminals and yards on the railroad to get input from crews, trainmasters, road foremen, and mechanical supervisors. "Local employees are best qualified to identify where changes are most appropriate," he said.

For his work, Duve was recognized as Norfolk Southern's 2014 nominee for the Association of American Railroads John H. Chafee Environmental Excellence Award. The award goes to a Class I railroader who displays a high degree of environmental awareness and leadership on the job.

## SUSTAINABILITY IN ACTION:

# RAISING THE BAR ON ENVIRONMENTAL PROTECTION



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JOE GENNETTE has a simple way to describe his job at Norfolk Southern: “If it has anything to do with environmental protection, my team is probably involved,” he said.

Gennette, manager of environmental operations, heads up a 12-member team that among other things oversees operation of 95 wastewater facilities at mechanical shops, intermodal facilities, and rail yards; provides emergency response to spills or incidents related to hazardous materials; ensures company compliance with environmental laws; and helps train operations employees in environmental protection.

During a 38-year career, Gennette has helped the railroad stay ahead of continually evolving state and federal rules that regulate air, land, and water quality. In recognition of his efforts, the company nominated Gennette for the 2013 Association of American Railroads’ “North American Environmental Employee Excellence Award.”

Norfolk Southern’s business approach, Gennette said, is to minimize environmental impacts of operations in the most efficient and cost-effective ways possible. The company’s goal is to exceed, not simply meet, government regulations, he said.

“If we’re not trying to excel, then we’re not trying hard enough,” he said. “I think we can always improve, and that’s what we’re looking for—continual improvement.”

Gennette, for example, served on a team that in 2013 revamped the process for the recycling of used oil in locomotive shops and fueling facilities. The railroad recycled more than 1.5 million gallons of used oil in 2013. With the changes, we expect to increase the amount by as much as 10 percent in 2014.

Nearly two decades ago, Gennette helped launch a program to recycle batteries systemwide. In 2013, we recycled more than 1 million pounds of batteries, keeping tons of contaminants such as lead and cadmium out of landfills.

Gennette said Norfolk Southern practiced sustainability long before it was recognized formally in corporate circles.

“I think sustainability just makes good business sense,” he said. “I encourage all of our employees at our shops and facilities to do everything they can to recycle and minimize the company’s environmental impacts, and the employees on my team work with them to do that.”

## SUSTAINABILITY IN ACTION: SUSTAINABLE SOLUTION TO A BUSINESS CHALLENGE



Finding solutions to business challenges does not always cost a lot of money or require major changes. **Laura Hoag**, assistant superintendent, and **Nick Wymer**, senior technology analyst on our Dearborn Division, can attest to that.

Finding solutions to business challenges does not always cost a lot of money or require major changes. Laura Hoag, assistant superintendent, and Nick Wymer, senior technology analyst on our Dearborn Division, can attest to that. Working together in early 2013, they came up with a plan that has saved money and time and reduced delays to train crews at terminals all across the system.

It started at our Toledo, Ohio, terminal. Looking for ways to improve on-time train departures, Hoag began talking with road train crews about work issues that slowed them down. A key theme emerged: Old dot-matrix printers the crews used to get printouts of their daily work bulletins were slow and in constant need of repair.

“Train crews were frustrated with how long it took for bulletins to print, and I didn’t want people standing around waiting,” Hoag said. She enlisted Wymer to help with the technology side. Their solution: They developed a pilot program to replace the old printers with laser printers. In addition, they changed the format of the work bulletins, including removing outdated information. This reduced the size of the bulletins, allowing train crews to focus on safety and service issues of immediate concern.

The resulting efficiency improvements were remarkable, Hoag said. The Toledo terminal office went from using four unreliable dot-matrix printers to three laser printers. Because the laser machines print on both sides of the paper, the office expects to reduce paper use by about 240,000 sheets annually, a savings of around \$88,000. Because the laser printers are 78 percent faster, train crew productivity has improved. Over three shifts, crews saved about six hours a day in waiting time—equivalent to about \$270,000 over a year, Hoag said.

During more than six months of operation, there were zero laser-printer failures, compared with 28 failures a month on average for the old printers, she added. The company is saving on contractor repair calls, crew time, dispatcher time, and internal IT staff time. As an added bonus, the new printers consume 57 percent less energy.

Since the pilot’s success in Toledo, the company has begun replacing dot-matrix printers across the system. By the end of first quarter 2014, 45 new laser printers had been installed in terminal offices on every operating division. The project’s impact on corporate sustainability, Hoag said, goes beyond savings on paper and business costs.

“If you think about sustainability in terms of people coming to work every day and being frustrated just in getting their basic paperwork, it makes a big difference to remove that level of inconvenience and inefficiency,” Hoag says. “If you improve employee morale, you improve the company.”

## SUSTAINABILITY IN ACTION: A PASSION FOR SUSTAINABILITY



### It is not an exaggeration to say that Jamie Helmer lives sustainability.

Helmer is manager of process engineering for the Mechanical Department in Roanoke, Va. She is a founding member and former chair of Roanoke SustainNS, an employee resource group formed in 2010 dedicated to promoting the company's environmental initiatives. She frequently bicycles to work, one of about 20 employees in our downtown Roanoke office building to do so—often to support the city's Ride Solutions program. Thanks to employees like Helmer, Norfolk Southern received an honorable mention in 2012 from the League of American Bicyclists for being a Bicycle-Friendly Business.

In her job, Helmer says sustainability comes naturally. "My main focus is working on process engineering—looking at everyday improvements that employees want to make in the workplace but need coaching in how to do it," she said.

Helmer sees a connection between sustainability and the company's focus on workplace innovation. She jumped at the chance in 2013 to help the company's InnovatioNS group pilot a HorsePower Chapter in Roanoke, its purpose being to share and develop ideas to make the company stronger. That includes ways to enhance workplace safety and efficiency, increase business revenue, and reduce expenses—all key to the company's long-term success.

"I teach employees how to grow an idea and build a business case around it," Helmer said. "Often when people think of innovation, they think it has to be big, earth-shattering ideas, but it can be something small and local. Trying to make change across the system is an enormous undertaking, but you can contact local management or a local recycling company and start that way."

Helmer has spearheaded employee efforts to recycle aluminum cans, plastic bottles, and batteries and helps manage a corporate electronics recycling event each year in Roanoke. Typically, about 200 employees participate. "Recycling is as easy as throwing your aluminum soda can in a container as you walk by," she noted.

In Helmer's view, however, there's more to being sustainable than recycling. Roanoke SustainNS sponsors regular "lunch-and-learn" programs that encourage employees to do everything from exercise more to join a local community-supported agricultural co-op that allows them to get local fresh food every week.

"Wellness has a piece in sustainability, too," she said. "Whenever you're walking, running, or biking to work, you're helping yourself as well." That's part of what has driven Norfolk Southern to introduce yoga, Zumba, and core classes in the Roanoke office building, all offered free of charge to employees.

Outside of work, Helmer and fellow SustainNS members frequently partner with the Roanoke Thoroughbred Volunteers, part of the company's official volunteer program, and YoungNS, a resource group for Norfolk Southern's young professional employees. For example, the groups came together to assist Roanoke's Rebuilding Together, an organization that helps low-income individuals stay in their homes by building or providing funds for wheelchair accessibility.

"That is why I love this company so much," Helmer says. "Besides the job itself, there are all these groups that let you bring your personality and passions to the job and be part of the community."

## SUSTAINABILITY IN ACTION:

# SUSTAINABILITY IS ALL ABOUT CUSTOMER SERVICE



As manager of customer service, **Greg Honore** spends a lot of time looking at ways that Norfolk Southern can improve service and business relationships.

As manager of customer service, Greg Honore spends a lot of time looking at ways that Norfolk Southern can improve service and business relationships. During 2013, Honore initiated a project that significantly improved the railroad's operating efficiencies and on-time delivery of customer freight.

Honore leads a team in the railroad's Network and Service Management Department in Atlanta. He had noticed that customers' shipments on certain rail lanes of traffic consistently were being delivered much earlier than scheduled. Customers base business decisions on shipment trip plans supplied by the railroad, Honore said, so freight that arrives earlier than the plan specifies can disrupt work and activities the customer had scheduled around the delivery time.

Honore wanted to know why this was happening—and figure out a way to solve it.

"One of our jobs in customer service is to validate our trip plans," Honore says. "Every shipment has a trip plan. Shipments are

supposed to arrive at their destinations within a window of plus or minus 24 hours."

Honore and his team began studying the worst performing traffic lanes in terms of early shipments. As they analyzed train movements on the problem lanes, they discovered that the issue could be addressed by communicating better with customers. They found that delivery times of many shipments were changing as they moved across the system but those changes were not being updated and communicated to customers on the trip plan.

"Some train schedules changed, but our trip plans did not," Honore explains. They found that the lanes with best on-time performance were those where customer service representatives took corrective action and provided customers with updated and accurate trip plans when schedules changed. That also meant that Norfolk Southern was not penalized for delivering shipments outside of the 24-hour consistency window.

Honore's team worked with the railroad's operations service support, terminal operations, service design, and transportation departments on ways to better validate trip plans against real-time freight movements.

"After we analyzed and implemented corrective action, on-time performance increased to more than 80 percent from 40 percent in some of the lanes we analyzed," Honore said. The changes Honore's team initiated affected more than 40,000 railcars in more than 50 lanes of rail traffic.

"It helps the customers by giving them a better vantage point of their shipments as well as a more accurate arrival time," Honore said. "The definition of 'sustain' is to provide what is needed to continue, and that correlates directly with our customer service efforts. We don't sell anything—we just provide service. If we provide great service, it allows our company to maintain its sustainability."

## SUSTAINABILITY IN ACTION: PROMOTING SERVICE THROUGH SAFETY



### Gregory Murgonovich, a locomotive engineer in Conway, Pa., lives Norfolk Southern's SPIRIT culture.

Gregory Murgonovich, a locomotive engineer in Conway, Pa., lives Norfolk Southern's SPIRIT culture. Since the railroad introduced behavior-based safety processes two years ago, Murgonovich has championed the change. The emphasis is on recognizing employees who display desired work behaviors and on coaching employees when they fall short.

"We do it through positive reinforcement," said Murgonovich, a former chairman of the Conway terminal's safety and service committee. "We're going out peer to peer and noticing what people are doing right," he said. "We're specific about the behavior we want to reinforce, we provide positive feedback for that, and we let people know what they need to work on."

The company's culture change, he said, has fostered a positive work environment and enhanced communication among employees. "I've seen changes," Murgonovich said. "There was a time when we only saw management when we did something wrong. It's good to see upper management noticing when we do things right and spreading that attitude throughout the system."

Murgonovich received training to facilitate classes in behavior-based safety for fellow craft employees. As he explains it, greater attention to safety promotes greater attention to service. "We want to gain the business and keep it going," he says. "Safety is the number one factor for gaining customer confidence."

## SUSTAINABILITY IN ACTION: SPEAKING UP FOR WORKPLACE SAFETY



**Pam Blakeney, system safety coordinator, thinks of Norfolk Southern as one big family. That view formed the basis of a campaign to support the company's ongoing implementation of behavior-based safety processes.**

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In 2013, Blakeney, who works in the Atlanta office, co-chaired a committee that developed the "Care to Speak Up and Share" campaign, an initiative that encourages employees to look out for their own safety and that of co-workers as well.

"When someone says, 'I work for Norfolk Southern,' it provides a common identity," she said. "We are all on the same playing field. I don't want you to get hurt, and I hope you don't want me to get hurt."

The campaign focuses on "peer-to-peer interactions." For example, an employee who sees a co-worker observing a work-safety rule, such as maintaining three points of contact while dismounting a locomotive cab, is encouraged to offer recognition and positive reinforcement for the safe behavior. Conversely, employees are encouraged to offer coaching and constructive feedback if they see an at-risk work behavior.

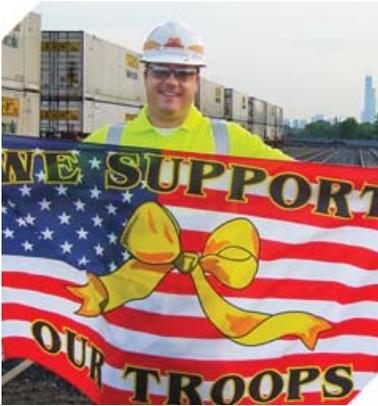
The campaign's logo is a handshake modeled on the iron "knuckles" used to link one railcar to another. "The knuckle that connects the cars, I felt, symbolized our workforce," Blakeney said. "We all need to shake hands, knuckle up, and work together."

Blakeney helped develop a simple five-slide PowerPoint presentation on the "knuckling together" concept of safety that supervisors can quickly share with employees to provide what she called "little tidbits to trigger your memory."

When visiting field locations, Blakeney tests the new campaign's success by intentionally not wearing safety glasses and waiting to see if someone will speak up. "The idea is to talk to someone," she said. "Care to do it. If I care about you, you're going to care about me."

Blakeney added: "If we're safe, we're going to attract the most talented employees and we're going to keep them," she said. "Plus, safety and service go hand in hand. If we operate safely, we're going to better satisfy the customer."

## SUSTAINABILITY IN ACTION: SUPPORT FOR THE TROOPS



### James Erickson, assistant division engineer track, knows how much Americans owe to the men and women serving in the U.S. military.

James Erickson, assistant division engineer track, knows how much Americans owe to the men and women serving in the U.S. military. He works alongside several veterans on his division, which extends from Elkhart, Ind., to Chicago. Two years ago, they inspired him to organize a holiday drive to collect care packages for soldiers serving in Iraq and Afghanistan.

Trackman Mike Cawley, a veteran of both Iraq and Afghanistan, gave Erickson the idea, and Chad Morris, assistant track supervisor and another vet of both wars, pitched in, too. Both men suggested items the troops would appreciate, including food, snacks, toiletries, and magazines. Erickson took advantage of working multiple territories with about 100 employees to spread the word. "The first year we did it, we had enough donated items to fill up the back of my truck," he said. The effort continued in 2013.

"We had agreement and nonagreement employees working together on this and taking ownership," Erickson says. "Everybody likes feeling good about donating, especially to the troops. You can spend \$10 to \$12 at the store and get a lot of things to donate that service members will appreciate."

Erickson shipped the donated items overseas through a nonprofit in Joliet, Ill., Operation Care Package.

"I think Norfolk Southern showing appreciation to the troops is important," Erickson said. "We serve a large portion of the United States, and the troops serve us. It's a small thing we can do to show our support."

## SUSTAINABILITY IN ACTION:

**MARY PITMAN: LEADING WELLNS BY EXAMPLE**

Who would have thought that eating a piece of cake could change someone's career?

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Who would have thought that eating a piece of cake could change someone's career? Mary Pitman, Norfolk Southern's manager health promotions, is a believer.

Pitman joined the company in 2006 as an instructional designer in the Human Resource Department's employee development group. During a departmental trip to the company's Brosnan Forest conference center, Pitman and coworkers sampled a flourless chocolate cake—it was delectable, even without the flour.

That experience inspired her to learn more about healthier food options, leading her to organize a Weight Watchers group at work. At the same time, the company began developing a formal program to focus on employee health and wellness. When the company launched WellNS in 2008, Pitman was a natural to lead it.

She is an enthusiastic participant in many of the programs offered through WellNS. "I've struggled with weight my entire life, so I can relate to others who face similar experiences," she said. "Now I'm in the best shape of my life, and I want to help others reach that same point."

Pitman gets motivated by the success stories of coworkers. "When our employees have healthier lifestyles, they are more efficient, productive, and alert," she said. "You can just tell they are happier people."

In June 2013, Pitman submitted a winning entry in the "Innovation and Inspiration" contest sponsored by Employee Benefit Adviser, an online resource for human resource and benefits professionals. For winning, Pitman landed a speaking role at the organization's Workplace Benefits Summit. With her presentation, "Please...Not Another Biggest Loser Contest!", Pitman explained that typical "get-fit-quick" programs fail because they are based on unrealistic goals and short-term changes.

"Norfolk Southern's WellNS program focuses on long-term, sustained health changes where everyone wins," Pitman said. "It's a group effort."

## SUSTAINABILITY IN ACTION: GIVING BACK TO COMMUNITY



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Canonization is not one of Rob Martínez's goals. Instead, Norfolk Southern's vice president of business development strives to be the best that he can be while using his gifts, skills, and faith to serve others.

"I'm not called to be Mother Theresa," he said. "That's beyond my ability, but I do know what I'm capable of as myself."

Martínez and his wife, Cristina, have shown that they are capable of quite a bit. He serves on the boards of directors of the Virginia Arts Festival, the Jamestown-Yorktown Foundation Inc., St. Matthew's School, and the McMahon Parater Foundation, which provides scholarships for children seeking a Catholic education in the Richmond, Va., diocese. A former college Spanish professor,

Cristina serves on their church parish's Respect Life Ministry and chairs the Parish Pastoral Council. In her efforts, Cristina seeks to promote appreciation for the inherent dignity of every human life. In recognition of their community service, the Catholic Diocese of Richmond, in conjunction with Catholic Charities of Eastern Virginia, presented the couple with the 2013 Bishop's Humanitarian Award.

Norfolk Southern's support and encouragement of volunteerism factors into Rob's community involvement. "CEO Wick Moorman time and again encourages all of us to do what we can do to help those less fortunate," he said. "We're all expected to be active. This is a cornerstone of our corporate culture."

Martínez and his wife are drawn to groups that work among the poor, locally and globally, and they have traveled to Argentina and Mexico to work with the Sisters of St. Ann, a community of nuns that assists the poor in Latin America, India, and Africa.

His family's influence also contributed to his dedication to volunteerism. A native of Cuba, Martínez was almost 5 years old when his family fled the country after the communist revolution. In Cuba, his parents had been certified public accountants. In the United States, his father worked at a settlement house in New York that provided adult education and schooling for immigrants' children, and initiated other services for the poor and the working class. His family lived in a one-bedroom apartment in Brooklyn, N.Y.

Martínez said his parents worked hard to build a better future for their family. "We were never victims and were always in control of our own destiny," he said. "It never was what we didn't have. It was always what we had."

Martínez and his wife have three adopted children. Javier, a recent graduate of George Mason University, was adopted from Mexico; Pilar, a student at Catholic University, was adopted domestically; Sebastian, who is in high school, is a native of Colombia. They have instilled the importance of community volunteerism in their children. "We turn it into a family thing," Martínez said, "and the kids do it out of love."