

Protecting our environment, now and for the future.



BUILDING AMERICA®



CLEANER LOCOMOTIVES

Trains are one of the nation's most environmentally friendly modes of moving freight. Union Pacific can move one ton of freight 475 miles on a single gallon of diesel fuel, generating a carbon footprint that is 75 percent less than trucks.

Locomotive fuel accounts for nearly all of our Greenhouse Gas Emissions, making it a key focus for our environmental innovations.

- Since 2000, UP has achieved an 18 percent improvement in fuel efficiency. Today, the railroad squeezes the most out of every drop of fuel, focusing on conservation through better locomotive technology and employee training and involvement.
- Union Pacific has spent approximately \$6.75 billion since 2000 to purchase more than 4,100 new locomotives that meet EPA Tier 0, Tier 1, Tier 2 or Tier 3 emissions guidelines.
- We retired more than 3,000 older locomotives and overhauled or rebuilt more than 5,800 locomotive diesel engines with emissions control upgrades.
- 94% of our nearly 8,500 locomotives are certified under existing U.S. Environmental Protection Agency Tier 0, Tier 1, Tier 2 or Tier 3 emissions standards.

PIONEERING TECHNOLOGY

Union Pacific is committed to reducing emissions and improving air quality in our operations through constant development and evaluation of innovative technologies.

- With its UP 9900, the signature unit in a series of 25 locomotives in California, Union Pacific tests three emissions-reducing technologies. Working with the California Air Resources Board, we are jointly analyzing the locomotives' emissions-reduction capability and anticipate an 85 percent reduction in particulate matter.
- To reduce yard emissions, Union Pacific pioneered the Genset switcher, which uses ultra-low emissions, EPA-certified, off-road diesel engines. The Genset reduces fuel use by 37 percent.
- UP developed a comprehensive plan to reduce unnecessary locomotive idling time. All new locomotives have automatic Stop-Start equipment and older locomotives are being retrofitted with it. Locomotive shutdowns can save 15-24 gallons of fuel, per locomotive, per day. In total, 78 percent of our locomotive fleet is equipped with this technology.
- UP has evaluated other experimental technology for reducing particulate matter and emissions of oxides of nitrogen, such as hybrid locomotives. These serve as stepping stones for other fuel and emissions-reducing innovations.

EMPLOYEE ENGAGEMENT

Employees understand that protecting the environment is part of every job, and they are developing world-class energy-conservation techniques to move more freight with less fuel.

- Union Pacific saves fuel, in part because of Fuel Masters Unlimited, an innovative program that rewards locomotive engineers for efficiently operating trains. The engineers with the best consumption rates receive debit cards they can use to fill their own vehicles with gas or to purchase other items.
- Other innovative employee efforts under way include assigning power by tons per axle to reduce fuel consumption and locomotive wear, and increasing use of distributed power to reduce in-train forces and drag while saving fuel and train starts.

OPPORTUNITIES ACROSS THE SYSTEM

Union Pacific's conservation efforts aren't limited to locomotives. Whether working in train yards or administrative offices, employees are making environmentally friendly choices every day.

- UP has a wide-reaching resource management initiative that results in the railroad diverting about 75 percent of its waste from the landfill. This includes metals, crossties, e-waste and more.
- We operate and maintain 89 wastewater treatment facilities across our system.
- Spill Prevention Control and Countermeasure plans have been prepared and implemented at more than 130 Union Pacific facilities that store, transfer or use oil products.
- Union Pacific continues to pursue conservation initiatives in other areas including expanded recycling programs and energy efficiency upgrades.

MORE INFORMATION

Union Pacific publishes an annual Sustainability and Citizenship Report at up.com.