CLEANER LOCOMOTIVES

Trains are one of the nation's most environmentally responsible modes of moving freight. Union Pacific can move one ton of freight 444 miles on a single gallon of diesel fuel, generating a carbon footprint that is 75 percent less than trucks.

Locomotive fuel accounts for most of our greenhouse gas emissions (GHG), making it a key focus for our environmental innovations.

• Since 2009, Union Pacific has saved more than 160 million gallons of fuel. 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 invested more than $3.8 billion in purchasing more than 1,500 new locomotives since 2008. These locomotives all meet the EPA’s tier standards.

• We've retired more than 1,950 older, less fuel efficient locomotives over the same time period.

• As a result of new locomotive and refurbishment programs, about 98 percent of Union Pacific locomotives meet EPA emissions standards.
PIONEERING TECHNOLOGY

Union Pacific is committed to reducing emissions and improving air quality in our operations through constant development and evaluation of Tier 4 innovative technologies.

• In 2018, the Sacramento Metropolitan Air Quality Management District and the Bay Area Air Quality Management District awarded approximately $15 million in grants to repower 10 diesel-electric switching locomotives into new EPA-certified Tier 4 single-engine switching locomotives. The repowered locomotives reduce particulate matter and nitrogen oxide emissions by more than 90 percent. Union Pacific is the only Class 1 railroad operating Tier 4 Genset switchers and is the first Class 1 to pursue Tier 4 single-engine repowers.

• 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, 91 percent of our locomotive fleet is equipped with this technology.

• With its UP 9900, the signature unit in a series of 25 locomotives in California, Union Pacific tested three emissions-reducing technologies. Working with the California Air Resources Board, we jointly analyze the locomotives’ emissions-reduction capability and 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 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.

• Through simulator training and peer coaching, locomotive engineers are honing their train operating techniques to conserve energy. They also utilize technology like a vehicle’s cruise control system and software that analyzes train operations through advanced GPS maps, prompting throttle and brake actions.

• Other innovative employee efforts 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 responsible choices every day.

• UP has a wide-reaching resource management initiative that results in the railroad diverting about 70 percent of its waste from the landfill. This includes metals, crossties, e-waste and more.

• We operate and maintain nearly 100 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 the Building America Report at up.com.