

Genset Switcher.

Cleaner locomotives

Trains are one of the nation's most environmentally friendly modes of moving freight – and are four times more fuel-efficient than over-the-road trucks. Union Pacific is aggressively working to reduce emissions by pioneering new technology. The Generator-Set (or Genset) switcher is an important emissions-reducing component in Union Pacific's fleet.

- The Genset switcher reduces emissions of oxides of nitrogen by 80 percent and particulate matter by 90 percent. It also uses up to 37 percent less fuel compared to older switching locomotives. This fuel savings translates into a greenhouse gas reduction of up to 37 percent.
- The new 2,000-horsepower locomotives are powered by three 667-horsepower ultra-low-emissions, U.S. Environmental Protection Agency (EPA) off-road Tier 3-certified diesel engines.
- At low throttle settings, only one of the engines operates, with the other two shut down. When additional power demand is needed, the second and third diesel engines automatically start and quickly go online, producing the right amount of electrical power required to move rail cars. When the Genset is not in use, all diesel engines automatically shut down to conserve fuel and reduce emissions.
- The Genset switcher is able to pull more rail cars at low speeds than other yard locomotives because the electric, or "traction," motors are independently powered and controlled, giving it superior adhesion compared to a typical locomotive with series-parallel motor connections.
- Union Pacific has 172 Genset switchers equipped with ultra-low-emissions, EPA off-road Tier 3-certified diesel engines.



- The "next generation" Genset switcher is equipped with six traction motors instead of the four found on traditional rail yard locomotives. The two additional traction motors help push rail cars over an incline, or hump, where gravity then propels the cars to destination-specific tracks. These Gensets provide increased power with six traction motors, while maintaining the environmentally friendly standards of the previous four-traction motor models.
- Union Pacific completed in 2013 a Genset locomotive fitted with diesel particulate filters to further reduce particulate matter emissions beyond normal low levels.
- Union Pacific pioneered the Genset, beginning in 2002, and it is now used by railroads around the world.
- Performance testing of a prototype Genset locomotive began December 5, 2005, at Union Pacific's Proviso rail yard near Chicago, Ill.
- The Genset earned Union Pacific the Environmental Protection Agency's Clean Air Excellence Award for being a sustainable solution that directly reduces air pollutants.

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