

EcoTrans Technologies Locomotive Fuel Injection System is an add-on technology that will reduce emissions from the existing stock of vehicles targeted by the Texas emissions reduction plan. The objective is to outfit two BNSF switcher locomotives with EcoTrans' new patent-pending Switcher Helix Diesel Engine Fuel Injectors, and demonstrate a significant reduction of the locomotive duty cycle NOx emissions from the current SIP baseline to the EPA's Tier 1 Switch Cycle Standard that is required for all new switcher locomotives built after 1/1/2003. The fuel injector incorporates internal design changes that affect the diesel fuel's start of injection for each individual speed and load point (locomotive notch setting). The new injector design will provide emissions reductions for all locomotive run positions to help meet the strict Tier 1 Switch Standard.

Two switcher locomotives from the BNSF fleet will be moved from a Houston, TX switching yard to the Southwest Research Institute (SwRI) Locomotive Test Facility in San Antonio, Texas. For each locomotive, engineers at SwRI will conduct baseline FTP testing, install the EcoTrans injectors, and conduct injector FTP testing. The locomotives (BNSF 2205 and BNSF 2297) are already outfitted with data loggers and GPS units. The units will then be returned to normal operation in the Houston switch yard where they will be monitored for a period of six months. Key data collected will include locomotive location, engine on/off, and throttle notch positions. This data will be collected every six minutes and downloaded daily to a SwRI database. The data will be analyzed and presented on a web site for periodic review by project coordinators and TCET analysts.

Based on SIP data and preliminary test data from SwRI, the use of these injectors on the switcher fleets operating in the Houston/Galveston non-attainment area will yield 5.3 tons of NOx reductions per locomotive per year. Based on SIP estimates of the number of switchers and locals (locomotives operating in a fixed area) operating in HGA, EcoTrans Fuel Injectors could result in 2120 tons of NOx reductions per year in HGA alone. Other non-attainment areas throughout Texas and the nation will benefit from the installation of these injectors as well.

The data from the six month study will be collected and results will be reported in a final document to be drafted by SwRI engineers and submitted to TCET personnel at the conclusion of the study. Data from this study will be used to file for a Certificate of Conformity from the US Environmental Protection Agency, resulting in the Fuel Injectors status as an EPA Certified Emissions Reduction Kit.