



Site Navigation

- Cleanups, Remediation
- Emergency Response
- Licensing
- Permits, Registrations
- Preventing Pollution
- Recycling
- Reporting
- Rules

- Data
- Forms
- Maps
- Public Notices
- Publications
- Records
- Webcasts

- About Us
- Contact Us

How 's our Customer Service? Please fill out our [Customer Satisfaction Survey](#)

You are here: [Home](#) → [Publications](#) → [Periodicals](#) → [Natural Outlook](#) → [Summer 2003](#) → [Idling Trains Made Less Toxic](#)

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Idling Trains Made Less Toxic

One technological innovation holds the promise of reducing air emissions from locomotives.

Once a locomotive is up and running, it will be a long time before its powerful diesel engine is shut down. Even in long periods of inactivity, locomotives operating on 2000- to 4000-horsepower are usually left running until time for repair or maintenance.

Estimates are that long-haul locomotives pulling railcars across country are inactive--but still running--38 percent of the time; those working as switchers in railroad yards idle 60 percent of the time.

As a result, the contributions to air pollution are significant--sustained releases of nitrogen oxides (NOx), hydrocarbons, carbon monoxide, and particulate matter.

A Florida-based technology firm says it can eliminate 95 percent of locomotive emissions with installation of an auxiliary power unit that keeps diesel engine fluids warm and provides power for auxiliary equipment to reduce the time the engine spends idling.

EcoTrans Technologies has been recognized by the Environmental Protection Agency and the TCEQ for innovations in emission reductions. The company figured out how to shut down an idling 4,000-horsepower diesel engine and use a 48-horsepower engine to perform vital functions necessary for reliable start-up. The results are reduced fuel consumption and air emissions.

"During idle, the main diesel engine typically burns about 4 gallons of diesel per hour," explained Guy Diedrich, project coordinator with EcoTrans. "With the auxiliary power unit, the engine burns less than half a gallon per hour. We estimate an annual reduction of about 5 tons of NOx per locomotive."

EcoTrans, a subsidiary of CSX Transportation, has received a Clean Air Excellence Award from EPA and a Texas Environmental Excellence Award from the TCEQ.

The firm's invention has been getting a trial run at a railroad yard near Houston. Auxiliary power units are installed on two Burlington Northern Santa Fe switcher locomotives. Switcher locomotives are typically the older, inefficient models, said Diedrich.

The year-long demonstration project, which received a \$285,000 grant from the Texas Council on Environmental Technology, will be completed this summer. The results will be reviewed by an independent laboratory.



This switcher locomotive is operating with an auxiliary power unit that saves on energy. The Burlington Northern Santa Fe Railway has been trying out the equipment for the last year./ photo by EcoTrans

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