Selecting sweepers that best meets Caltrans needs

Finding a better alternative to using compressed natural gas or diesel-powered sweepers.

WHAT IS THE NEED?

The South Coast Air Quality Management District (SCAQMD) regulations prevent California Department of Transportation (Caltrans) from acquiring new diesel street sweepers for use in SCAQMD jurisdiction. As a result, Caltrans began using compressed natural gas (CNG) sweepers. The CNG units are not as reliable as diesel sweepers and have lower production rates. The Divisions of Equipment (DOE) and Maintenance want to determine if there are better alternatives to using CNG powered sweepers.

WHAT ARE WE DOING?

This research entails a review and evaluation of street sweepers in several combinations of drivetrain and fuel type. Each sweeper drivetrain configuration will be subjected to the identical test cycle to allow direct comparison of fuel use, efficiency, and emissions. The research team will perform chassis dynamometer and Portable Emissions Measurement System tests for all five street sweepers.

WHAT IS OUR GOAL?

The goal of this research is to determine if hybrid electric street sweepers powered by gasoline, diesel, or fuel cells are a better alternative to using CNG or diesel-powered sweepers. To make this determination, the researchers will compare diesel, CNG, diesel hybrid, gasoline hybrid, and hybrid fuel cell sweepers.
WHAT IS THE BENEFIT?

This research will identify the best equipment and methods to meet sweeping needs while minimizing costs and satisfying all regulatory mandates and laws.

WHAT IS THE PROGRESS TO DATE?

The research team has performed an activity data logger installation on one CNG sweeper at the Westdale Yard, District 8. The team also performed activity data logger installation on two Diesel sweepers at the Sylmar Yard, District 8.

The researchers continued to collect hydrogen sweeper data from US Hybrid online interface, and were able to gained access and download hydrogen sweeper GPS data. They performed data analysis on CNG and hydrogen sweeper activity data and identified additional sweepers to install activity loggers.