

University of Houston to test local buses for fuel efficiency

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It seems fuel economy is on everyone's minds these days.

The Metropolitan Transit Authority of Harris County, with its large bus fleet, is no exception.

For several years, the transit authority, known as Metro, has been adding diesel-electric [hybrid buses](#) to its fleet in an effort to curb the transportation system's fuels costs.

Exactly how much fuel Metro is saving with its hybrids is the question the University of Houston has been asked to answer.

Next month, UH's Texas Diesel Testing & Research Center will begin testing hybrid and regular Metro buses for fuel efficiency.

"Metro's bus vendors have outlined the projected fuel costs savings of their buses, but the [transportation system](#) wanted an independent verification of those figures," said Rachel Muncrief, the project's lead investigator and a UH research assistant professor of chemical and biomolecular engineering. "This two-year project is essentially about fuel economy."

The UH center is a comprehensive research facility for the development and testing of advanced powertrain and emissions after-treatment technologies for local, state and federal governments as well as the fuels, engine and after-treatment industries.

Staffed by researchers from chemical and biomolecular engineering and mechanical engineering, the center's focus is on cleaner emissions, renewable fuels and increased fuel economy for heavy duty diesel vehicles.

A diesel-electric hybrid bus is distinguishable by a large, heavy battery attached on top of the vehicle.

There are different types of hybrid buses and the newer models come equipped with technology designed to reduce nitrogen oxide (NO_x) emissions.

[Hybrid buses](#) generally are more expensive to purchase and they each weigh about 2,000 pounds more. Still, the long-term fuel savings makes them a good investment.

Hybrids also use regenerative brake systems, which transfer some energy into the batteries when the brakes are engaged, helping to recharge the batteries. This makes the buses easier to operate because drivers don't have to push as hard on the brakes.

For the Metro project, researchers will test both hybrid and regular buses to get baseline information from each, and they also will determine if one hybrid model is more fuel-efficient. They also will test buses with the air-conditioning on and off.

"Metro's fuel prices increase during the summer because of air-conditioning, and the difference can be significant, about 20 percent," Muncrief said.

UH researchers will "drive" the buses on the facility's 500 horsepower AC chassis dynamometer test cell, which measures emissions and [fuel economy](#) under controlled conditions.

There won't be any real-road testing performed, but the dynamometer will be programmed with a bus route that runs along Westheimer Road, complete with projected stops and starts – no speed bumps, however.

"There is a lot of interest in this project because of the [fuel](#) savings issue. UH has the benefit of having a chassis dynamometer to test these large vehicles," Muncrief said.

A total of eight Metro buses will be tested during the two-year project. The first tests are scheduled to begin within the first two weeks of November.

Provided by University of Houston

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