

# State Hot For Fuel Cells Despite Rail Report

By MARK PETERS Courant Staff Writer October 11, 2007

Commuter rail and fuel cells sound, in theory, like a good marriage. The possible benefits include keeping cars off the roads, reducing emissions and promoting a fledgling local industry. But a new report found that, at least initially, fuel cells would not be a good choice to power the more than 300 trains run by Metro-North each day on the New Haven line.

The Connecticut Academy of Science and Engineering, in a report to legislators Wednesday, recommended that Metro-North, at least initially, consider using fuel cells on a smaller scale to generate electricity and heat for the railroad's expanding rail yard in New Haven. Two of the largest commercial fuel cell companies in the country, UTC Power and FuelCell Energy, are based in Connecticut. That's part of the reason the legislature asked the academy to study ways to demonstrate and promote the technology, for which manufacturers are trying to develop a larger market.

Scientists and engineers with the nonprofit academy found that, technically, fuel cells are a feasible way to power an electric rail system. But using fuel cells to supply the massive amount of electricity needed to power Metro-North trains would be expensive and it would be difficult to find places to install the necessary equipment along the congested railway corridor in southwestern Connecticut. Also, there would be limited ways to use the heat produced by the fuel cells.

Use of the heat is important as a way to lower costs and increase fuel cell efficiency. Fuel cells use hydrogen, typically derived from natural gas, and oxygen to produce electricity through a chemical reaction. The only byproduct is water.

Using fuel cells with trains hasn't been a main consideration of the fuel cell industry. Development of the technology for commercial use has focused on powering buildings, buses and cars, although there's been some research in recent years into fuel cell locomotives.

South Windsor-based UTC Power hasn't pursued railroads as a market, viewing it as most probably a later adopter of fuel cell technology. One of its biggest areas of focus is as a power source for buildings. Rob Roche, marketing managing for UTC Power's on-site power group, agreed that using waste heat is essential to making fuel cells competitive. For example, the academy found in its report that the cost of electricity produced by a fuel cell ranges from 13 cents to 27 cents per kilowatt-hour depending on how efficiently the technology is used. By comparison, the report said that electricity bought from traditional power plants to power Metro-North trains costs 11 cents per kilowatt hour. Although costs come down as heat energy from the fuel cells is used for heating, air-conditioning and hot water systems, the academy report said MetroNorth could face challenges in finding businesses that might use the heat energy. Danbury-based FuelCell Energy said the heat can be used to create additional electricity. State officials should look more closely at that option, especially in Fairfield County, where electric supply has been a concern.

Legislators and fuel cell companies stressed that fuel cell costs compared to traditional power plants can't be the only consideration for transportation officials. Benefits such as zero emissions, a system to back up the traditional electric grid and developing a market for a Connecticut-produced product should also be considered as the state transportation department debates how to use fuel cells.

"It makes perfect sense to use a technology being developed and manufactured in the state of Connecticut," said Senate President Pro Tem Donald E. Williams Jr., D-Brooklyn.

DOT officials told legislators during a morning hearing at the Legislative Office Building in Hartford that it will investigate the use of fuel cells in new construction being planned for the New Haven rail yard as well as other new construction projects.